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ADDRESSES AND ORIGINAL ARTICLES

ON CERTAIN SEPTICÆMIAS DUE TO ANAEROBIC ORGANISMS *

BY A. LEMIERRE, M.D.

PROFESSOR OF BACTERIOLOGY IN THE FACULTY OF MEDICINE, PARIS; PHYSICIAN TO THE CLAUDE BERNARD HOSPITAL

THE septicæmias dealt with in this address arise from several species of anaerobic organisms which are specifically distinct from one another but which possess the common character of living as saprophytes in the natural cavities of the human body, mouth, pharynx, intestine, and genito-urinary passages; they are fragile, very slightly motile, and grow sparsely on culture media. To this group of organisms belong those Gram-negative and non-spore bearing bacilli which certain bacteriologists group together under the name of "bacteroïdes"; their rôle in the production of non-traumatic gangrene has been described in France by Veillon, Zuber, Rist, Guillemot, and Hallé. With them must also be placed certain Gram-positive anaerobic micrococci, streptococci, and staphylococci, which have been variously named by the different authors describing them.

These septicæmias arise from inflammatory or suppurative lesions in the tissues or cavities where the above-mentioned anaerobic organisms exist under physiological conditions. Having proliferated in these localities they pass into the blood stream and frequently give rise to septic emboli in distant areas. Such septicæmias tend to arise—

(1) From inflammatory lesions of the nasopharynx, particularly tonsillar and peritonsillar abscesses.
(2) From similar lesions of the mouth and jaws.
(3) In connexion with otitis media or mastoiditis.
(4) From purulent endometritis following parturition.
(5) From appendicitis.
(6) From infections of the urinary passages.

But whatever their origin, they present certain common clinical aspects which enable them to be grouped together. For that reason, as typical of the group as a whole, the post-anginal septicæmias will be first described, and in later portions of this paper attention will be directed to the clinical and pathological similarity between such post-anginal septicæmias and those which arise from other sites.

The post-anginal septicæmias due to anaerobic organisms most frequently seen in Paris are due particularly to the *Bacillus funduliformis*, described in 1898 by Jean Hallé, which can usually be isolated in pure culture from the blood and from secondary abscesses; it is sometimes associated with an anaerobic streptococcus. The first cases of septicæmia from this cause were described in 1929 and 1931 by Prof. Pierre Teissier and his collaborators Jean Reilly, Rivalier, Layani, and Stefanesco; later similar observations were published by the writer with Jean Reilly, Layani, Friedman, and André Meyer, by Cathala, Bourgeois, and Gabriel, by Jame and Jaulmes, and by P. de Font-Réaulx. In 1935 Pham Huu-Chi published a considerable work on this subject.

In Germany, where Schottmüller must be given the credit of being the first to describe them in 1918, the importance of the anaerobic post-anginal septicæmias has been emphasised by a number of physicians, including Buigold, Fränkel, Claus, and Kissling. The name given by them to the usual causal organism of such septicæmias is *Bacillus symbiophiles*, and they state that it is usually associated with an anaerobic streptococcus. The present incertitude concerning the classification of anaerobic organisms and the diversity of bacteriological tests employed by different observers to identify them make it possible that *B. funduliformis* and *B. symbiophiles* are either identical or else belong to very similar species of bacteria. In any case the description which the German authorities give of the post-anginal septicæmias corresponds feature by feature to what the present writer has observed.

Clinical Picture

The disease usually affects young adults or adolescents, both sexes being equally attacked. Claus and Kissling have observed that sometimes small epidemics occur, a fact which I can confirm. The most usual initial cause is a tonsillar or peritonsillar abscess, opened too late or to an insufficient degree. At times what appears to be a simple tonsillitis may conceal small foci of suppuration in the depths of the tissues which cannot be demonstrated clinically; an example of this was recently under my observation at the Claude Bernard Hospital in Paris.

Since the original work of E. Fränkel in 1919 German authorities have considered that these septicæmias are the result of a thrombophlebitis of the tonsillar and peritonsillar veins which can spread to the internal jugular vein or even to the facial vein. My own observations agree with this conception.

The first symptom of septicæmia complicating the pharyngeal inflammation is a notable rise of temperature to 101° or 103° F., accompanied by an intense rigor. The rigor usually occurs on the fourth or fifth day after the beginning of the sore-throat, occasionally as late as the eighth, tenth, or even twelfth day, by which time the tonsillar inflammation appears to be cured and the initial fever has disappeared. After this rigors are repeated daily, several times per day, or at more remote intervals. In the gravest cases the temperature remains in the region of 100° to 103° with exacerbations corresponding to the rigors; in milder and more chronic cases the pyrexia is hectic and irregular.

There is usually painful swelling of the glands below the maxillary angle usually on one side only, occasionally on both; there is slight local œdema and tenderness on pressure and on movement of the head; this occurs on the lateral aspects of the neck, parallel to the sternomastoid muscle, and extends from the angle of the jaw to the clavicle; suppuration sometimes occurs at this site.

The *B. funduliformis* septicæmias observed by myself have never been pure septicæmias, they have always been accompanied by the formation of distant metastatic abscesses. Amongst such secondary localisations the most frequent are those in the lungs. They occur early and may be present from the first day. They are in the nature of septic infarcts leading almost invariably to multiple abscess formation which is announced by intense thoracic pain of sudden onset, by dyspnœa, sometimes by blood-stained or rusty sputum, by pleural frictions, and by localised areas of subcrepitant râles. Very frequently these pulmonary infarcts are complicated by purulent pleural effusions containing *B. funduliformis*, but in

* An address delivered on March 3rd, 1936, at the Middlesex Hospital Medical School.

rare cases such effusions may be serofibrinous and aseptic. These purulent effusions occasionally open spontaneously into a bronchus, giving rise to a pyopneumothorax.

Articular lesions are also extremely frequent; they range from simple pains in the joints, sometimes of great severity, to suppurative arthritis occurring especially in the shoulders, elbows, knees, sterno-clavicular or sacroiliac articulations.

Icterus and subicterus have often been noted and urobilin is invariably present in considerable quantities in the urine.

Renal lesions are manifested by albuminuria, sometimes accompanied by a slight or considerable increase in the blood-urea. I have also had occasion to observe thyroiditis, suppurative peritonitis, abscess formation in the psoas muscle or in the deep muscles of the buttock originating from sacroiliac arthritis. During the course of the disease there is usually a leucocytosis ranging from 13,000 to 30,000 white cells and in the more chronic cases the red cells are sometimes reduced to 2 or 3 millions.

These septicæmias may progress rapidly and end fatally in from 7 to 15 days; in such cases the temperature remains constantly high, the patient is in a state of extreme prostration with the aspect of a case of typhus, and dies in coma. In other cases the repeated recurrence of attacks of extreme high temperature may in a few days bring about fatal collapse. Again the fatal termination may be delayed to the end of the third week, or even a month or six weeks may pass before it occurs. In such examples the temperature becomes irregular and oscillating; in accordance with the recurrence of excessive febrile attacks one sees the usual phenomena appear; pulmonary infarcts, pleural effusions, and arthritic phenomena; the patient wastes, the colour becomes pale and earthy, and there are profuse sweats; finally delirium occurs and death follows in a condition of cachexia. It may be hastened by the sudden bursting of an abscess into the bronchus followed by syncope.

Diagnosis

The most characteristic lesions found at autopsy are those in the respiratory tract. The lungs are the site of necrotic infarcts, both centrally and peripherally, usually about the size of a pigeon's egg and circumscribed. Some are seen as yellow masses surrounded by a hæmorrhagic zone, others in the form of cavities containing pus. From these lesions *B. funduliformis* can usually be recovered in pure culture, but occasionally it is associated with an anaerobic streptococcus. In a case recorded by Prof. Tessier and his co-workers, which was accompanied by deep jaundice and purpura, the liver was greatly enlarged and was studded with necrotic abscesses from which the organism was isolated in pure state.

From this it is clear that these septicæmias carry an extremely grave prognosis. Of the 20 cases observed by the writer and certain of his colleagues in Paris only two have recovered. These two were, however, amongst those appearing most ill and were complicated by pulmonary and arthritic manifestations; further, the number of organisms in the blood, estimated after the examinations of cultures, appeared as great in these as in the fatal cases. In these survivors cure occurred spontaneously and treatment had been of purely symptomatic character.

It is therefore understandable that certain German observers have been led, as soon as the clinical diagnosis was possible, and without awaiting the results of bacteriological examination, to perform ligation of the internal jugular vein on the side of the affected tonsil. They claim that thanks to this intervention the mortality has been diminished. I have personally had recourse to this treatment in a recent case but unhappily without success in preventing a fatal termination.

To anyone instructed as to the nature of these septicæmias it becomes relatively easy to make a diagnosis on the simple clinical findings. The appearance and repetition several days after the onset of a sore-throat (and particularly of a tonsillar abscess) of severe pyrexial attacks with an initial rigor, or still more certainly the occurrence of pulmonary infarcts and arthritic manifestations, constitute a syndrome so characteristic that mistake is almost impossible.

Certain diagnosis is established by bacteriological examination. *B. funduliformis* is easy to discover in the purulent effusions, but it is blood culture on anaerobic media which gives the earliest definite information, and this is particularly sure if the blood is taken during a rigor.

The culture medium employed at the Claude Bernard Hospital by J. Reilly, which can be particularly recommended, consists of 10 c.cm. of the glucose agar of Veillon to which is added 40 c.cm. of peptonised bouillon and 2 c.cm. of a 20 per cent. solution of glucose. This medium divided in glass tubes 25 cm. long and 25 mm. wide, is liquefied by heat at the moment of employment and kept at a temperature of 40° C. After 2 to 4 c.cm. of blood have been added the tubes are immediately cooled under the tap. The colonies appear in it after two to four days' incubation at 37°.

B. funduliformis in pus smears appears in the form of a fine bacillus of 2 to 3 μ in length, Gram-negative, and exhibiting at each end a well-coloured mass, whilst the centre of the microbe remains clear. In cultures it presents, and this is a very important point, a remarkable polymorphic appearance. It occurs in preparations simultaneously as a fine bacillus, as long filaments, more or less voluminous, and sometimes as spherical elements Some of these spherical bodies, of a diameter of about 2 to 4 μ, are intensely susceptible to basic stains. Others achieve greater dimensions, as much as 12 to 14 μ. Their protoplasm is clear but they contain coloured nuclei of various shapes sometimes resembling the nuclei of polynuclear leucocytes. The spherical elements are quite characteristic and permit absolute identification of *B. funduliformis*. The polymorphic character of the microbic elements may be observed in the first cultures obtained from the blood but is much more obvious in subcultures. In individual cases sometimes the forms with filaments and sometimes the spherical forms predominate.

One further characteristic of the bacillus may be mentioned—namely, that it is constantly hæmolytic. Finally, J. Reilly has demonstrated that, on injection of cultures into the rabbit, septicæmia with metastatic abscess formation in the lungs, liver, and joints, exactly comparable to what is seen in man, is produced.

Various Sites of Infection

THROAT AND EAR

The *B. funduliformis* is the commonest pathogenic agent in post-anginal septicæmias such as have been described above. But other bacilli of the same group may also be the causal agents. Allusion has already been made to the *B. symbiophiles* of Schottmüller; recently Grumbach and Verdan (of Zürich) have in three instances found in the blood a "fuso-bacterium nucleatum" which is perhaps identical with *B. funduliformis*. There is, on the other hand, an anaerobic organism very definitely distinct from *B. funduliformis* —namely, *B. fragilis*—which is occasionally

responsible, as the present writer, with Guy and Rudolph, has demonstrated; a similar infection has been observed by Richon, Kissel, and Lepoire.

The infections described above are marked by rigors and embolic phenomena, but it occasionally happens that somewhat similar fevers are observed which get well without any such complications although blood culture has revealed anaerobic organisms; we have, for example, observed cases of this sort from which *B. ramosus* has been recovered and another due to an anaerobic staphylococcus. Such cases are exceptional and are not due to a true septicæmia but to simple momentary and benign bacteræmia. These observations are nevertheless instructive; the transient discharge of organisms into the blood stream during a pharyngeal infection is certainly capable, occasionally, of producing embolic phenomena which may take on the appearance of a local disease in which the original cause is not clear. Such septic emboli may be the origin of certain cases of pulmonary suppuration or of empyema or arthritis, clinically resembling that which has been described in this paper but of lesser gravity because a true septicæmia is not present.

On the other hand, the reason why the complications heretofore described have been straightforward suppuration, but not of a putrefactive character, is that they have been due to pure infection by *B. funduliformis* or at most to this organism associated with an anaerobic streptococcus. The fœtid pus of tonsillar abscesses contains many species of anaerobic organisms, and it is surprising that only one or two of them usually pass into the blood stream. It does, however, occasionally occur that others of these anaerobes may take this course and give rise to septicæmias of mixed origin with putrid embolic foci. I have, for example, described with P. de Font-Réaulx, a case with the usual blood picture but complicated by gangrenous osteoperiostitis of the pubis and gangrenous pulmonary abscesses containing many different species of anaerobic organisms.

The description given of the post-anginal septicæmias is sufficient to allow review of those arising from other primary foci to be very brief. Such are observed in the course of otitis and mastoiditis particularly when fœtid otorrhœa has been present, such fœtor being due to infection with anaerobes. Otitis of this type is very frequently complicated by lateral sinus thrombosis and is the cause of pulmonary emboli.

Anaerobic septicæmia arising from otitis and proved by blood culture has been described particularly by Guillemot (*B. fragilis* and *B. radiiformis*), by Boez, Keller, and Kehlstadt (*B. fragilis*), by Boez, Keller, and Schreiber (*B. ramosus*), by Langeron (anaerobic staphylococcus), and by Franklin and Camb (Gram-negative *B. fusiformis*).

The clinical manifestations of such septicæmias are very closely similar to the picture given of the post-anginal septicæmias. The same picture has been observed by us in connexion with buccal suppuration following the extraction of heavily infected teeth.

UTERUS AND PELVIC ORGANS

Anaerobic septicæmias are well known as complications of postpartum uterine sepsis. The clinical similarity of these to the post-anginal septicæmias has recently been emphasised by A. Schneider. The normal presence of *B. funduliformis* and other anaerobic organisms in the vagina was noted in 1898 by J. Hallé, and in 1902 Jeannin called attention to the proliferation of these anaerobes in the uterine cavity after any severe case of suppurative puerperal endometritis.

In a series of publications since 1910, Schottmüller has given a full description of these septicæmias which are always linked with the presence of peri-uterine thrombophlebitis; fever, repeated rigors, pulmonary metastases, and occasional icterus are the outstanding clinical features. He gives as the commonest cause an anaerobic streptococcus, the *Streptococcus putridus*, which may be associated with other organisms including the *B. symbiophiles*. Similar cases have been observed by myself and by Boez, Keller, and Kehlstadt. In the uterine septicæmias, as in the post-anginal ones, the metastatic abscesses are only fœtid when the infection includes a number of different species of anaerobes.

It has further been noted that similar phenomena may occur after surgical operations on the uterus and pelvic organs, and that apart from septicæmia a simple bacteræmia may occur producing distant abscesses the primary focus of which may be overlooked.

OTHER LOCI

Gangrenous appendicitis is known to arise frequently from anaerobic infections; such cases are sometimes complicated by thrombophlebitis of the mesenteric veins, by pylephebitis, by liver abscess, and by fœtid subphrenic abscess. In such cases Schottmüller has isolated from the blood streptococci, anaerobic staphylococci, and the *B. symbiophiles*. Nedelmann has recently isolated the last-named from such a case in pure culture. The site of the thrombophlebitis in such cases prohibits the formation of pulmonary infarcts, but gangrene of the lung and purulent pleurisy are occasional complications. The usual high fever and rigors characterise such cases.

In 1899 Cottet noted the presence of organisms of this type, notably *B. funduliformis*, in certain cases of peri-urethral suppuration. Thomson and Beaver have reported a case of septicæmia due to *B. fragilis* in a patient suffering from cancer of the bladder, and another of septicæmia due to *B. funduliformis* following prostatectomy, this last case being complicated by iliac phlebitis and pulmonary metastases.

Summary

No attempt has been made to review completely the literature of the subject, but sufficient has been said to demonstrate that, whatever their primary focus, the septicæmias produced by the anaerobic organisms which occur as saprophytes in the natural cavities of the human body display remarkable clinical similarities. They commence by suppuration in the local site and this is followed by local thrombophlebitis. Considerable fever and intense rigors are the next feature, and these are followed very frequently by septic pulmonary emboli. The syndrome is so characteristic that it permits of diagnosis before bacteriological examination, including blood culture, has provided conclusive proof. The post-anginal septicæmias due to *B. funduliformis* have been specially described, but the same phenomena are observed when such septicæmias of anaerobic origin arise from other initial causes.

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MEDICAL PROBLEMS IN MINERAL METABOLISM*

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II.—SODIUM DEFICIENCIES IN CLINICAL MEDICINE

The Body Fluids

AT the outset of this lecture I wish to say something of the formation and composition of the body fluids, a number of which are set out in diagrammatic fashion in the accompanying Figure. The upper half of each rectangle represents, in milli-equivalents per litre, the concentrations of the bases in that fluid, and the lower half indicates the concentrations of the acids. For any given fluid the two must obviously be equal. It will be noticed that the composition of the cell fluid differs radically from that of all extracellular fluids, for the former contains chiefly potassium phosphate whereas the latter characteristically contain sodium chloride and bicarbonate. There is practically no interchange of basic ions between the cells and the fluids surrounding them.

The substances dissolved in these fluids cause them to have a considerable osmotic pressure which amounts to about 8 atmospheres.[267] The pressure is due (*a*) to the non-electrolytes. In man these contribute only a small quota to the total osmotic pressure and are not indicated in the diagram. They are, generally speaking, equally distributed between cells and plasma, and so merely raise or lower the general level of osmotic pressure of the whole body without affecting the water distribution between the cells and plasma. In the dogfish non-electrolytes are present throughout the body in large amounts and so raise its osmotic pressure above that of the surrounding sea water. We were chiefly concerned with this total osmotic pressure of the body in the discussion of the water regulation of the marine fish (Lecture I.). (*b*) To the electrolytes. These consist of the inorganic and organic (protein) ions, but the inorganic ions give rise to nearly the whole of the electrolytic osmotic pressure. The protein ions contribute so little towards it that they may almost be neglected, and therefore the electrolytic osmotic pressure taken to be the sum of the osmotic pressures due to the inorganic basic and acidic ions. Since the basic ions of the extracellular and cellular fluids are not interchangeable, their concentrations control the electrolytic osmotic pressure of their respective fluids, and hence the water distribution between the cells and plasma. It is the electrolytic rather than the total osmotic pressure with which we are chiefly concerned in man.

The rectangles in the diagram are not all of the same length. The greater length of some of them (serum, cell fluid, semen, and bile) is due to the proteins or colloidal bile acids which they contain, and does not indicate a greater osmotic pressure.[252] Actually the total osmotic pressure of the serum, the other internal extracellular fluids, and of the cells are all the same. This is an important point, and indeed it is fairly certain that no fluid could remain long in contact with the internal body cells without coming into osmotic equilibrium with them by the passage of water in one direction or the other. Even the bile in the gall-bladder, which may contain much more sodium than the serum,[90] seems to have the same osmotic pressure as the other body fluids.[264] There is practically no protein in any of the secreted fluids, and the short rectangles (saliva and sweat) indicate real differences of osmotic pressure. These fluids which are secreted on to an impermeable stratified epithelium need not have the same osmotic pressure as the internal fluids.

With two exceptions sodium forms about 94 per cent. of the total base of the extracellular fluids. The first exception is the gastric juice, where, as is well known, hydrogen forms between 60 and 70 per cent. of the total base. The second exception is the semen, in which potassium forms 17 per cent. of the total base instead of the usual 3 per cent. The two important acid radicles of serum, œdema, cerebro-spinal fluids, and of the gastro-intestinal secretions are chlorides and bicarbonates, but they differ very greatly in their relative concentrations, and it is these differences which impart some of the peculiar characteristics to each fluid. Semen has a most interesting and unusual composition for an extracellular fluid, for it contains a large amount of phosphoric acid. The main acid radicle of sweat is chloride, but some bicarbonate, lactate, and other ions are also present.

A glance at the diagram is sufficient to show that, although the gastro-intestinal fluids and semen have the same osmotic pressure as the serum,[99 100 101] they are true secretions in that their ionic pattern is different. The same is true of saliva and sweat, which differ obviously from serum not only in composition but also in osmotic pressure. It is impossible to draw any accurate conclusions about the cerebro-spinal fluid from the rough diagram shown here, but its composition, together with that of serum, serum ultrafiltrates, and œdema fluids, is set out in Table I. The osmotic pressure of serum and cerebro-spinal fluid is the same.[86] The relative concentrations of

TABLE I

Composition of Serum, Serum Ultrafiltrates, Effusions, and Cerebro-spinal Fluid

Mg. per 100 c.cm.

—	Serum.	Serum ultra-filtrate.	Effusion.	C.S.F.
Sodium ..	330	334	334	334
Potassium ..	17	18	17·5	10·6
Calcium ..	10·3	5·54	5·9	5·33
Magnesium ..	2·5	1·8	—	3·3
Chloride ..	365	387	390	436
Bicarbonate ..	151	—	150	105
Phosphorus ..	3	3·0	3	1·8
Sulphur ..	1·9	2·0	2·2	0·6

Sources of Information

Sodium: 62 97 167 255
Potassium: 39 97 167 177 179 191 334
Calcium: 41 69 70 73 125 166 176 179 189 191 226 232 235 255 265 285 298 300 303 332
Magnesium: 51 97 166 189 190 191 300 333
Chloride: 97 151 281 285 317
Bicarbonate: 54 75 97 125 281
Phosphorus: 73 97 128 166 179 255 301
Sulphur: 255 General: 82 97 166

*The Goulstonian lectures for 1936, delivered before the Royal College of Physicians of London on March 5th, 10th, and 12th. Lecture I. was published on March 21st; the remainder of Lecture II. and Lecture III. will appear in forthcoming issues.

TABLE II

Average Volumes of Digestive Fluids Secreted by an Adult Man in 24 Hours

(After Rowntree [273])

Secretion.	Volume c.cm. in 24 hours.	Authority.
Saliva	1500	Bidder and Schmidt.
Gastric juice	2000–3000	
Bile	300–500	Pfaff and Balch.
Pancreatic juice ..	500–800	Wohlgemuth.
Succus entericus ..	3000	Pregl.
Approximate total ..	8000	—

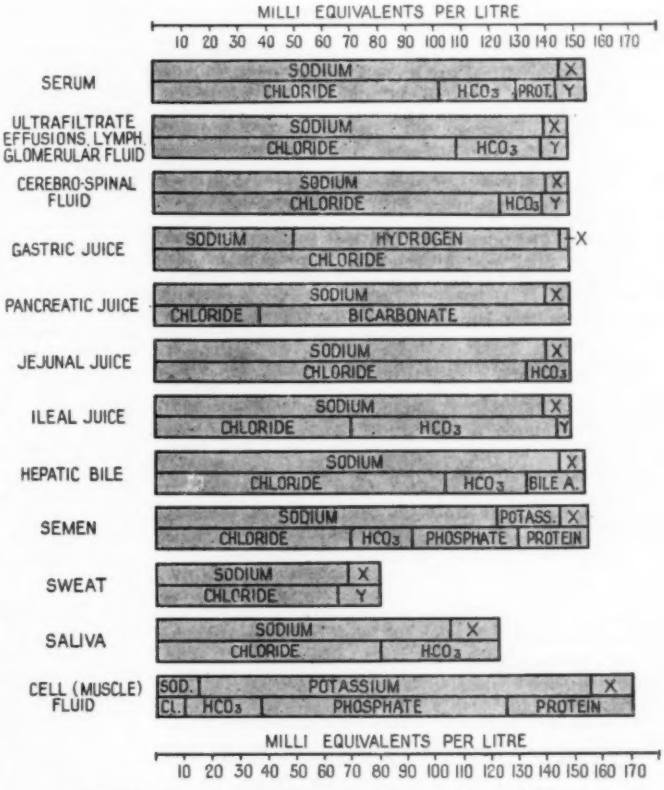
magnesium, potassium, chloride, bicarbonate, phosphate, and sulphate in effusions, ultrafiltrates, and cerebro-spinal fluid show however that while effusions and œdema fluids are probably formed by simple ultrafiltration, the cerebro-spinal fluid is a secretion. If further evidence were required, it has been shown that large pathological variations in the serum calcium are not reflected in the cerebro-spinal fluid.[95 106 144 216 326 333] I have, for example, recently seen two cases of severe long drawn out tetany, in which the sera contained 5·81 and 3·78 mg. of calcium per 100 c.cm. The cerebro-spinal fluids contained 5·07 and 4·36 mg. per 100 c.cm. respectively—normal amounts, and one of them actually higher than the corresponding serum.[187] Again, induced changes in the plasma bicarbonate only appear in the cerebro-spinal fluid if the meninges are inflamed.[218] Non-electrolytes have not the distribution between the two fluids that one would expect were the cerebro-spinal fluid an ultrafiltrate.[46 50 60 75 266 278 327]

The concentration of magnesium[190] and possibly of chlorides [178 181] has been found to fall in tuberculous meningitis with no corresponding change in the serum. Lastly, the way in which the flow of cerebro-spinal fluid responds to changes of oxygen and CO_2 tension strongly suggests secretion rather than filtration.[236] I have perhaps over-stressed the way in which the cerebro-spinal fluid is formed, but it is not generally appreciated in this country and I think it is helpful to bring this fluid into line with others which are secreted into the body spaces.

The volume of blood in an adult's body may be taken roughly to be about 5 litres, of which say 2·5 are plasma. From this plasma all the extracellular secretions of the body are derived, and the volume of these is very large. Table II., which is copied from Rowntree [273] and McQuarrie,[198] gives an indication of the large volumes of digestive juices which may be secreted by an adult man in 24 hours. I do not, however, think these figures unreasonably large, for Katsch and Mellinghoff [157 215] have obtained figures of the same order from patients from whom continuous removal of gastric juice was being practised for therapeutic reasons. It is obvious that secretion into the gut at this rate is only made possible by an equally rapid reabsorption at a lower level, and that the continuous loss of any one of the gastro-intestinal fluids must have very serious consequences because of the loss of sodium and water which it entails. I wish now to consider this subject in more detail, with special reference to the resulting sodium deficiencies.

Forced Loss of the Extracellular Fluids

(*a*) *Loss of the intestinal secretions.*—This is a common cause of sodium deficiency and water loss which operates in continuous vomiting,[218 219 263 312] particularly in pregnancy,[68 113 126 127 163 168 247 284 325] or the so-called cyclical vomiting of children,[20 140 165] pyloric stenosis [38 148 230 246 260] and intestinal obstruction,[114 117 168 202 203 214 240 258] gastro-enteritis, diarrhœa and cholera,[176 217 260 269 270 281 282 286 287] and especially perhaps in the acute diarrhœa and vomiting of children.[45 52 131] A typical sodium chloride



Composition of the body fluids: X = unnamed basic radicles.
Y = ,, acidic ,,

Sources of Information

Serum: [138, &c.]

Cerebro-spinal fluid, exudates, ultrafiltrates, and glomerular fluids: see Table I., also [31 32 95 96 228 233 327 328]

Gastric and pancreatic juices, bile: [89 90]

Jejunal juice: [16 148 150]

Ileal juice: [16]

Semen: [104 187 192]

Sweat: [187 200 201 227 229 340]

Saliva: [17 49 137]

deficiency has been produced by draining a gall-bladder which contained a salt-secreting papilloma.[162] Our present knowledge of the subject is the result of a great deal of research and investigation commencing over one hundred years ago into the nature of the fluids lost and the resulting acid-base-water balance of the organism.[241 242 286 287] Intestinal obstruction,[7 10 58 79 84 91 92 107 111 112 115 116 118 119 120 121 122 142 152 186 305 331 336 337 339] the continuous loss of gastric,[4 64 72 89 107 136 157 180 215 329 341] pancreatic,[64 77 90 136] duodenal,[24 89 90 330] and intestinal juices[16 145 150] have all been experimentally produced and the blood chemistry fully investigated. The subject has been reviewed by a number of writers.[35 58 88 94 168 196 204 283 339]

(*b*) *Loss of sweat.*—This is not nearly such a common cause of sodium chloride deficiency in this country, but it may give rise to unrecognised ill-health in hot climates,[193 194] and may be most serious[164 195 314] or fatal. Some remarkable escapes have been recorded.[195] Sweating is an essential step in the production of stoker's or miner's cramp,[67 229] and some aspects of the subject have been investigated experimentally in man.[15 30 69 170 200 201 209 229 313 340] Small laboratory animals do not sweat. The horse does, freely, but I am not aware of any experiments on this animal.

(*c*) *Loss of other extracellular fluids.*—Porges and Mach have described an unusual cause of salt deficiency—namely, repeated tapping of collections of ascitic fluid in a patient who was on a low salt diet. This must be rare, but a similar method has been employed experimentally.[63 98 161 245 291 344] Large injections of a glucose solution were made into the peritoneal cavity. The injected fluid rapidly came into equilibrium with the plasma electrolytes. By tapping the abdomen after this had taken place and before the fluid was absorbed a large part of the body's extracellular ions was removed.

Changes in the Blood and Cells Caused by the Loss of the Extracellular Fluids

Let us once more consider for a moment the composition of the body fluids and consider what will be the effect of their removal upon the fluids left behind. Take, for example, a mixture of the jejunal and ileal juices and let us suppose that 500 c.cm. have been secreted and removed from 2500 c.cm. of plasma. The mixed juices resemble plasma in composition (see Figure) except that they contain less protein, and we may consider for this purpose that 500 c.cm. of protein-free plasma have been removed. The results will be (*a*) a reduction in plasma volume from 2500 to 2000 c.cm.; (*b*) a reduction in the blood volume from say 5000 c.cm. to 4500 c.cm. and a corresponding rise in the cell count; (*c*) a concentration of the plasma proteins by 20 per cent. and a rise therefore in the colloidal osmotic pressure; (*d*) no change in the concentration of serum electrolytes—i.e., little or no change in the total osmotic pressure.

The removal of a similar volume of pancreatic juice would have brought about the same hæmoconcentration, but in other ways the results would have been different, for much more bicarbonate than chloride would have been removed. An excess of the latter therefore would have been left behind and this would have led to an acidosis. With the removal of gastric juice a still further complication would be introduced, for this juice is not only acid but contains far less sodium and more chloride than the plasma. The removal of 500 c.cm., therefore, would leave the remaining 2000 c.cm. of plasma with a deficiency of chloride but with an excess of sodium. This would make the plasma hypertonic, but this might not be appreciable because water would move in compensation from the cells to the plasma. There would, however, be an alkalosis. 500 c.cm. of sweat contain very much less sodium chloride and bicarbonate than a similar amount of plasma. It is obvious that their removal from 2500 c.cm. of plasma would raise the concentration of sodium salts in the remaining 2000 c.cm.

In practice the removal of 500 c.cm. of one of the extracellular fluids would not greatly alter the composition of the plasma, for there are small accumulations of extracellular fluid in various parts of the body which may be drawn upon to maintain the composition of the plasma relatively unaltered. Indeed, the total amount of extracellular fluids in the body is thought to be as much as 20 per cent. of the body-weight.[63 173] Moreover, changes in the acid-base balance may be masked by the kidney, which always tends to counteract such abnormalities. Further, water may be taken by mouth and some or all of it absorbed. After moderate loss of gastric juice or sweat this is wholly beneficial, for the water is used to restore the hypertonic plasma to normal and at the same time to make up the plasma volume. When water is absorbed after large amounts of other body fluids have been lost, or if the loss of base (however brought about) has been sufficiently severe, the osmotic pressure of the plasma is no longer strictly maintained. A compromise is struck between the volume of the plasma and its osmotic pressure,

TABLE III

—	Red blood-cells (mil./c.mm.).	Plasma proteins (per cent.).	Blood vol. (c.cm.).	Serum Na. (mg./100 c.cm.).	Serum Cl. (mg./100 c.cm.).	Alkali reserve (vols. per cent.).	Blood-urea (mg./100 c.cm.).	Acid-base balance.
Normal ..	5·0	7·0	5000	330	370	60	30	Normal.
Pyloric stenosis	5·5	7·6	4500	315	300	90	50	Alkalosis.
Diarrhœa (severe)	6·0	8·2	4000	300	330	15	120	Acidosis.
Intestinal obstruction ..	5·8	7·3	4200	290	320	40	80	Generally normal.
Sweating without drinking	8·0	9·0	3800	380	410	70	80	
Sweating with drinking (see Lecture III.)	6·5	7·9	4200	290	322	59	70	

so that we find them both to be reduced. In clinical medicine, and experimental work dealing with intestinal obstruction, the matter is further complicated by the fact that mixed secretions are often lost, so that the final blood picture may be most confused. Table III. shows the sort of changes that one might expect to find clinically in the blood. The figures, which are shown in relation to a standard normal, were not taken from particular instances but compiled from the literature and correspond to the text-book disease rather than the bedside case. It must be emphasised that the normal itself is subject to some variation, and that patients may have had a secondary anæmia or a subnormal percentage of proteins in their plasma before the onset of the acute intestinal disaster. Disregarding, however, these complications it will be observed—

(*a*) That there is always a reduction of blood volume. This is of course entirely due to a reduction in the plasma volume which is also reflected in—

(*b*) the rise of the red cell count and
(*c*) the rise in the plasma proteins.
(*d*) There is a fall in the serum sodium, except when sweating has been severe and water has not been taken by mouth. It is not invariable in pyloric stenosis, for reasons which I have just given, but usual. In assessing the total loss of sodium from the body, both the reduction in the extracellular fluid volume and in the concentration of sodium in these fluids must be considered.
(*e*) There is a fall of chloride and rise of bicarbonate in pyloric stenosis due to the loss of hydrochloric acid in the vomit. In diarrhœa, in which the alkaline pancreatic juices are lost, the fall in bicarbonate exceeds the fall in chloride.
(*f*) In intestinal obstruction there may be a simultaneous loss of pancreatic and gastric juices so that there may be little or no change in the acid-base balance of the plasma.
(*g*) A rise in the blood-urea always accompanies these changes. This will be referred to later.

Since the osmotic pressure of the cells is always close to that of the plasma, you will appreciate that these departures from the normal electrolyte pattern of the plasma must affect the cells. A rise or fall in the concentration of sodium alters the electrolytic osmotic pressure of the plasma, and the cells of the solid tissue conform to this by varying their water content. They do not lose potassium [224 248] or take up sodium. The red blood-cells of man behave like the tissue cells. The erythrocytes of the dog, on the other hand, which contain sodium but not potassium respond to osmotic changes in their environment by changing their base rather than their water content.[344]

The Chemical Pathology of Addison's Disease

I turn now to other causes of sodium and water deficiency and say something of Addison's disease. Clinically, the progressive destruction of the suprarenal is accompanied by widespread symptoms and signs,[129 274 275 292] but notably by a low blood pressure, wasting, asthenia, pigmentation, urea retention, anorexia, and often vomiting. The serum sodium is abnormally low, but this is not the result of the vomiting. The chemical pathology of this disease has been enormously advanced by the experimental suprarenalectomies which have been carried out extensively on rats, cats, and dogs in the last few years. Blood pressures have been found to fall in rats [74] and dogs,[245 311] and the animals become very weak and die before long unless treatment is administered. The blood changes have been studied [13 14 37 38 183 185 208 291 305 308 320 345 346] on numerous occasions, and it has been established that the blood volumes fall and the red cell counts increase. Polycythæmia is not a feature of the clinical disease because it may be obscured by a secondary anæmia, [274 275] or a compensatory reduction of red cells.[126 211] The disease is so chronic that there is ample time for such secondary adjustments to take place. The hæmoglobin, however, has been observed to fall with the administration of sodium chloride and to rise again when salt was withheld.[149] The serum proteins rise,[185 308] but curiously enough Silvette and Britton [291] did not find this in cats and I think the matter should be further investigated. The only patient with Addison's disease whose serum I have had the opportunity of examining had over 7 per cent. of serum proteins. This is normal, but in my experience it is higher than one would expect in a chronic wasting disease. The explanation is to be found in the work of Greene et al. [108] on the clinical disease. These authors have found that the serum proteins may be normal when the patients are in good condition, but that in the periods of crisis they are raised. All are agreed that after bilateral suprarenalectomy the serum sodium falls and with it the chloride [185 345] and, to some extent, the alkali reserve.[183] These changes reduce the electrolytic osmotic pressure of the plasma. Hence the normal distribution of water between the cells and plasma is upset, for the muscles, which do not lose their electrolytes, take up water [289 290] till osmotic equilibrium is restored. Marañon and Collazo [208] have not confirmed this over-hydration of the muscles on clinical material, but their evidence on this point is unsatisfactory because it is not clear how they obtained their controls. The blood-sugar falls,[37 38 289] the serum potassium rises,[208 320 346] and there may be some interference with the absorption of fat from the intestine.[323 324] The blood-urea rises. It will be seen that the changes in plasma volume, blood volume, cell count, serum sodium, chloride and urea are the same as those which occur when sweating is severe and accompanied by the ingestion of large amounts of water—i.e., in sodium chloride deficiency without water deprivation (Table III.)—and the primary cause I consider to be the same—namely, the loss of sodium [182] (see Lecture III.). This is entirely supported by the beneficial effects of sodium chloride in the treatment of the experimental [13 93 128 210 271 276 310] and clinical disease.[22 149] The sodium appears to be the controlling ion,[210] and indeed Blankenhorn and Hayman have claimed that a mixture of sodium sulphate, phosphate, and bicarbonate was as effective as sodium chloride for 17 days in maintaining the health of a patient. This requires confirmation, as remissions are common enough in Addison's disease, and sodium sulphate and phosphate are not very efficacious in sodium deficiencies of intestinal origin.

In the absence of any over-activity of the sweat glands or any obvious loss of the bodily secretions, one naturally turns to the urine in search of the channel through which the sodium is lost. Increased excretion has been demonstrated, and the simplest if not the most "intelligent" [248] view to adopt is that in the absence of cortical hormone the renal threshold for sodium falls. Sodium salts therefore are excreted in excessive amounts even when the plasma levels are normal or subnormal. In the absence of an exaggerated intake this must inevitably lead to a sodium deficiency.

Diabetic Coma and Chronic Interstitial Nephritis

There is one other clinical cause of sodium deficiency, but I have left it to the end because it is, I think, the most difficult to understand. We know from the experiments of Haldane [124] and Dennig et al. [66] that a severe experimental acidosis induces at first a large loss of fixed base (mostly sodium), concentration of the plasma proteins, and hæmoglobin.[11] The acidosis must be pronounced to bring about these effects,[155] and even under Dennig's severe experimental conditions the loss of base did not continue for more than a few days. There was, in fact, some retention of sodium in the later stages,[83] and removal of the acidosis led to an immediate swing back to normal.[66 206] The body's chief protection against such a loss of fixed base is the ability of the kidney to form and excrete ammonia.

The blood picture in diabetes and diabetic coma has been very fully studied, and is in keeping with a salt deficiency. There is no doubt for instance that in comatose patients [135 250 262] or depancreatised animals [146] the plasma proteins tend to be raised and the red cells concentrated. These findings may be due solely to the water loss caused by the high blood-sugars and forced diuresis,[251] but are to be expected also

with a salt deficiency. Reverse changes take place during recovery.[171 174] Plasma chlorides tend to move inversely with the blood-sugar in experimental and clinical diabetes of all grades of severity,[103 220 221 234 307] and even in non-diabetic animals.[48] There may be a great reduction in the plasma chlorides in coma,[26 27 43 87 169 249] which indicates a deficiency of extracellular electrolytes. The urinary chlorides are commonly very much diminished.[43 87 188] It has even been suggested that the fall in serum chlorides is the cause of the insulin resistance of coma[257] but this is not a very satisfactory hypothesis, and in any case, in spite of their absence from the urine, the plasma chlorides may be normal or even high in coma.[8 188 251] Diabetic tissues take up the chloride ion with abnormal avidity.[2] A fall of serum chlorides must not be considered to be proof of a salt deficiency, and the only reliable index of this is a fall in the serum sodium. Such a fall has been demonstrated in coma and precoma,[135 171 188 249] and it is natural to regard this as the result of the acidosis.[27 239] Atchley et al.,[9] moreover, have demonstrated by balance experiments that a loss of fixed base took place when insulin was withheld for some days from severe diabetics in whom ketosis developed. On the other hand they also observed a small negative sodium balance and a small fall in the serum sodium in another patient in the absence of ketosis, and according to Sunderman et al.[306] there may be a rise in the total base of the serum following a single large dose of insulin to a non-ketosed subject. However that may be, the published figures for serum sodium, coupled with the knowledge that the serum volume is reduced, makes it clear that the patient in coma has lost a variable and often large fraction of his body sodium. According to Blum et al. this loss may be very considerable and amount to 40 or 50 per cent. of the total sodium in the body.[24 25] A loss of this magnitude must mean a serious fall in the electrolytic osmotic pressure of the intracellular fluids. The total osmotic pressure may, however, be high[146] due to the very high blood-sugars. Assuming the concentration of sugar to be the same throughout the body fluids, the water distribution between the cells and plasma will be unaffected by the sugar, and resemble that of simple salt deficiency when the total osmotic pressure of the plasma is low. Be that as it may, the total osmotic pressure of the body will undoubtedly become subnormal under the action of insulin, and this will be accentuated if water without salt is taken with the insulin and absorbed.[171]

In diabetes the ability of the kidneys to form ammonia is normal[188] and only an intense acidosis will produce a serious loss of fixed base. In chronic interstitial nephritis the power to form ammonia is impaired,[205 243 295] and in my opinion this is why a normal production of acids can bring about the loss of fixed base.[213] In this disease some of the general signs, which I have tried to show you are generally associated with sodium deficiency, are absent. There is no hæmo-concentration for instance. I think the explanation must lie in the secondary changes which have time to develop in such a chronic disease. You will remember that I explained the differences between the blood pictures of clinical and experimental Addison's disease in a similar way.

As is usual, however, when the serum sodium is reduced there are generally signs of dehydration and a diminished volume of the extracellular fluids.[253] As in diabetic coma the total plasma osmotic pressure may not be reduced in spite of the reduction of plasma electrolytes. This is due to the very great rise of blood-urea which has usually taken place. This urea (more certainly than glucose) is equally distributed over both cells and plasma and therefore will not affect the distribution of water between the plasma and the cells. The latter consequently are likely to be swollen up with water which they do not want and cannot get rid of, and which prevents them from functioning normally.

These then are the clinical conditions associated with a loss of extracellular electrolytes. I have attempted to give you some idea of the way in which the losses are brought about and the resulting blood changes. I have also tried to show you how these changes in turn affect the body cells. You will remember that the losses may be accompanied or followed by an acidosis, or an alkalosis—or neither, and that they are often associated with a forced loss of water. Owing to these complications and the other pathological processes which are going on at the same time, it is difficult to decide how much of the various clinical syndromes may be attributed to the electrolyte deficiency. It is indeed difficult to form a picture of the real effects of a loss of neutral sodium salts, but I shall return to this later. I propose now to discuss other aspects of these diseases and to review them in the light of the blood and tissue changes which I have already mentioned.

The Arterial Blood Pressure in Salt Deficiency

A very low blood pressure is usual in Addison's disease. It is also the rule in diabetic coma. I am not aware of any published observations on the blood pressure in the earlier stages of simple intestinal obstruction, but the later stages are accompanied by shock, collapse, and a lowered blood pressure. Claims have been made that a high salt intake may produce a high blood pressure,[316] and a low salt diet is believed by some to benefit hyperpiesis. There is then a suggestion that the lowered blood pressure of the diseases under discussion may be a reflection of the reduction of blood volume, brought about by the loss of salt or other cause of anhydræmia. I do not think this is the case, but I must defer giving you some of my reasons for saying so till my last lecture. Meantime let me remind you that in chronic interstitial nephritis, in which a low serum sodium is quite common, the blood pressure is characteristically high.

The Nitrogen Balance

There is a little clinical and experimental evidence which suggests that sodium deficiency (or dehydration) may produce a breakdown of body tissues and set up a negative nitrogen balance. The evidence is at best rather unsatisfactory, but I wish to put it before you because of its bearing on what I shall have to say subsequently. In the first place Addison's is unquestionably a wasting disease, but in the absence of accurate balance experiments one can make little of this evidence owing to the coincident nausea and anorexia. Diabetic coma is invariably accompanied by an extravagant and unbalanced nitrogen breakdown, but the uncontrolled diabetes provides an adequate explanation for it. Some of the earlier work on water deprivation is most unconvincing,[280 299] but evidence has accumulated[197 211] that thirst or severe dehydration from diarrhœa,[217] with or without salt deficiency,[10] may produce excessive breakdown of body protein. Hartwell and Hoguet[140] and Haden and Orr,[120 122 240] in their experimental work on dogs, showed that intestinal obstruction caused a much greater breakdown and excretion of nitrogen than starvation alone, and they made some confirmatory observations on patients.[114] They showed

that the administration of saline prevented this increased nitrogen excretion, and suggested [122] finally that it was due to a loss of chlorides, but it must be remembered that Whipple and his collaborators [57 336 337 338] considered that the breakdown of body protein observed under similar circumstances was the result of a proteose intoxication. The two views have been reconciled to some extent by the suggestion that the "toxin" is endogenous histamine produced by the injured intestinal cells, and that its action is to accentuate the loss of chloride by its stimulation of the gastric glands.[7] There is, therefore, uncertainty as to the cause of the tissue disintegration, and it must be admitted that experimental interference with the continuity of the alimentary canal does not provide ideal conditions for a study of the nitrogen balance, and in clinical practice it will always be negative because of the diminished intake.

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The remaining references of Lecture II. will appear with the concluding part of this lecture next week.

SOME OBSERVATIONS ON THE EXCRETION OF ASCORBIC ACID

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THE condition of scurvy in an adult is rarely seen in England. The in-patient records of St. Bartholomew's Hospital show that such a diagnosis has only been made three times in the last 22 years. The latest of these cases was diagnosed in July, 1935, when a man, aged 63 years, was brought by the police to the hospital because he had fainted in the street. The detailed investigation of this case is here recorded.

During the last two years the man had been out of work and his health had begun to fail. He was only able to walk two miles without getting tired, whereas previously he could walk eight miles. For the last six months he had tired very easily and his teeth were decaying. Four weeks previous to admission the patient noticed some difficulty in walking; his legs felt weak. For the last fortnight the appetite had been very poor. A red patch appeared on the ankles; then some pain was felt in the right knee, which swelled slightly and became discoloured with a bruise, blue at first and then red and yellow. The swelling and bruising continued to spread above and below the knee, and when he first came to the hospital, three days before admission, the legs showed petechial hæmorrhages about the ankles, and swelling and bruising of the subcutaneous tissue about the knees. It was not possible to admit him on that day, but admission was arranged for three days later. On his way to the hospital he felt very tired and sat down on a doorstep where he was found by the police in a fainting condition and brought up to the hospital.

Past health.—Gonorrhœa at 32. Right hydrocele for the last ten years. His general health had been very good and although he had travelled in many countries he had never had any tropical disease.

Condition on admission.—Well-made elderly man, looking rather ill. The eyes showed no abnormality; tongue clean. The teeth were nearly all present, but several were decayed and loose. The gums were red, soft, and much swollen, especially at the right side of the lower jaw; at this point the gum nearly reached the top of the teeth and bled easily when touched. The glands in the neck were not enlarged. The heart, lungs, and abdomen did not show any abnormal physical signs apart from the hydrocele. Blood pressure 185/70. The lower part of the right thigh was swollen and the skin was stained blue, red, and yellow. The right knee was swollen and appeared to contain a little fluid. The calves, shins, and ankles showed some petechial hæmorrhages which were almost confluent behind the ankles and heels. Œdema was present and extended half way up the calf of both legs. The tourniquet test did not cause any petechial hæmorrhages on the arms. The temperature was 98° F. on admission, and rose to 99° that night, but subsequently remained below 98·4°. The pulse varied from 60–80. Respiration 20. The urine did not contain any albumin, blood, or sugar. (Three days later a few red cells were found in the urine on microscopic examination.) The presence of swollen and bleeding gums together with bruising and petechial hæmorrhage suggested the diagnosis.

DIET PREVIOUS TO ADMISSION

The man was out of work and was living alone on a sum of only 17*s.* 6*d.* a week; he had drawn up

a careful budget and allowed 6*s*. 2*d*. a week for food.

Expenditure on food.	Per week. s.	d.
Meat or fish at 4*d*. per day	2	4
Egg, meat, or sardines at 2*d*. per day	1	2
Bread	1	0
Tea, cocoa, coffee		6
Sugar		4½
Condensed milk		2½
Butter		3
Potatoes, salad, or fruit		4
	6	2

Other expenses.	Per week. s.	d.
Gas (average)		9
Tobacco and matches	1	6
Washing		9
Soap, stamps, &c.		3
Clothes (set aside)		6
Papers and library book		4
Amusements		7
Beer (Saturday night)		4
Rent	6	0
	11	0

Details of diet.—Breakfast: 2 eggs or meat pie or sardines, bread and butter, coffee. Dinner: 6 oz. meat, bacon, or fish; chip potatoes, bread and butter. Supper: cocoa, bread and butter. A little salad and some stewed fruit was eaten one or two days a week. Fried onions and potatoes once a week. Green vegetables were never eaten because of the expense of the gas for cooking them. A little tinned pineapple had been eaten about four weeks before admission. It is difficult to say how much salad was eaten, but probably a very small amount as only 4*d*. a week was spent on potatoes, salad, and fruit. The vitamin content of the diet was thus very small.

Mr. G. T. Hankey examined the gums the day after admission and reported that the "swollen, hæmorrhagic appearance of the gums is probably scorbutic."

Blood count.		*Differential count.*	
Hæmoglobin	54 per cent.	Polynuclear cells	4224 per c.mm.
Red cells	2,680,000 per c.mm.	Lymphocytes	1792 ,,
Colour-index	1·0 ,,	Large mononuclears	320 ,,
Leucocytes	6400 ,,	Eosinophils	40 ,,

Bleeding time, 1½ mins.; platelet count, 190,000; Wassermann reaction negative.

X ray examination of the legs did not show any subperiosteal hæmorrhage.

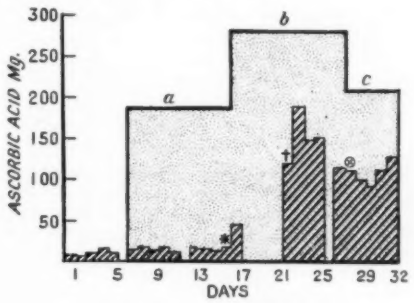
THE DIAGNOSIS

The absence of fever and a raised pulse-rate was against the diagnosis of a septicæmia or a subacute bacterial endocarditis. The white count of 6400 and the absence of any abnormal cells excluded leukæmia and the number of platelets and the normal bleeding time a thrombocytopenia.

In order to determine the excretion of ascorbic acid, we kept the patient, who had eaten some potatoes and green vegetables for dinner, and some orange juice at tea-time on the day of admission, for the next six days on a diet containing practically no ascorbic acid; the amount excreted in the urine was estimated each day except on Saturday and Sunday.

The titration of specimens of urine for their ascorbic acid content was carried out by the Tillmans' reduction indicator 2–6 dichlorophenol indophenol modified as suggested by Harris and Ray.[1] Before titration, acetic acid was added to the dye solution in such amount that the concentration of acetic acid at the end of the titration was in the region of 10 per cent., a preliminary titration giving the clue to the amount of acetic acid required. The solution of dye was standardised against freshly prepared solutions of ascorbic acid, the check being repeated at intervals of three days. The ascorbic acid solutions were checked by titration against 0·01 N iodine. All forms of ascorbic acid administered during the tests were titrated against the dye solutions used for the urinary estimations. As far as possible fresh specimens of urine were titrated but where this was found difficult, as in the examination of the night material, the ascorbic acid that had undergone reversible oxidation was recovered by reduction with H_2S as described by Emmerie and Van Eckelen.[2] Grace Medes[3] has shown that the pH of the urine is of great importance in this process. Experiments in this laboratory with urines allowed to undergo partial oxidation on standing showed that if the initial pH of the urine was in the region of 6 to 6·5 treatment by H_2S resulted in a 95 per cent. recovery after the specimen had been standing for 18 hours. The results in estimating urines of very low ascorbic acid content by this method are certainly too high owing to some reduction by other constituents of the urine, but as in these investigations the substantial quantitative variations in excretion on scorbic and ascorbic diets were of moment, the errors which must be considered in estimating very small amounts could be ignored.

The amount of ascorbic acid excreted in the urine was very small and varied from 6–18 mg. on the first six days (Fig. 1). On the seventh day 300 c.cm.



Total amount ingested at { * 1870 mg. † 3550 ,, ⊗ 4950 ,,

(*a*) Intake of 187 mg. of ascorbic acid each day
(*b*) ,, ,, 281 ,, in the form of orange juice.
(*c*) ,, ,, 210 ,, .. of ascorbic acid.

FIG. 1.—Showing the amount of ascorbic acid excreted (diagonal shading) in relation to the amount ingested (stippling) over a period of 32 days in a scorbutic patient. When a total of 4950 mg. had been ingested the excretion amounted to an average of 53 per cent. of the intake.

of orange juice was added to the diet; the amount of ascorbic acid in this amount of juice was estimated by the dye test at 187 mg. The excretion of ascorbic acid in the next ten days was slightly larger and varied from 10 to 19 mg. a day (average 15 mg.). If it is assumed that the dye test is accurate when such small amounts are being excreted, 150 mg. were excreted out of a total of 1870 mg.—that is, a difference of 1720 mg. On the seventeenth day the dose was increased to 281 mg. which was contained in 450 c.cm. of orange juice. On the first day of the new diet—i.e., the seventeenth day—the excretion rose to 42 mg. The ascorbic acid was not estimated during the next four days as the laboratory was closed for the August Bank Holiday and the ascorbic acid could not be preserved more than 24 hours. From the twenty-first to twenty-sixth day the excretion of ascorbic acid varied between 115 mg. and 190 mg. and the average excretion was 126 mg. a day; as the daily intake was 281 mg., 46·6 per cent. was excreted with urine. During the next five days 210 mg. of pure ascorbic acid was given each day instead of orange juice. The average excretion for the five days was 110 mg. and 51 per cent. was excreted. This shows that the pure ascorbic acid behaved in the same way as that contained in the orange juice.

THE THERAPEUTIC TEST

During the first six days after his admission to hospital the patient definitely improved in health. All the œdema subsided and the bruising of the thighs was slightly less; the fluid in the right knee-

joint disappeared. The teeth had been scaled by Mr. Hankey and the gums, touched with silver nitrate 10 per cent., showed a definite improvement, but the gums were still much swollen and bled easily. Though a little vitamin C had been given at dinner and tea on the day of admission, the improvement was probably due mainly to the rest in bed. Very rapid improvement followed the administration of the orange juice; after three days it was noted that the bruising was passing off and that the gums were retracting very quickly; after eight days there was still a little bruising round the left heel. The teeth presented a remarkable appearance; the retraction of the gums had exposed a broad band of white tooth which was in striking contrast to the stained crown. The improvement in the blood picture was also interesting:—

Date. (1935)	Hb. (per cent.)	Red cells.	C.I.
July 22nd	63	2,800,000	1·1
,, 26th	67	3,300,000	1·0
Aug. 9th	66	3,700,000	0·9
,, 21st	79	4,500,000	0·8

During this period no iron or liver was administered. The colour-index of 1·1 had raised some doubt as to the nature of the anæmia, especially as it is stated by Vaughan [4] that the anæmia of scurvy is a hypochromic one, but Parsons and Smallwood [5] have pointed out that even in children the anæmia may be ortho- or hypochromic in character. The rapid recovery of the patient confirmed the clinical diagnosis of scurvy.

The excretion of ascorbic acid was estimated in two other cases to see how soon the excretion of ascorbic acid increased and what percentage of the dose was excreted.

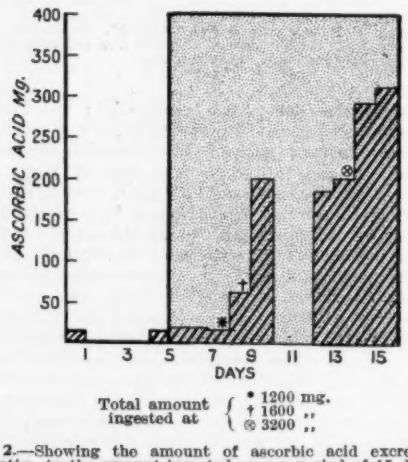


FIG. 2.—Showing the amount of ascorbic acid excreted in relation to the amount ingested over a period of 17 days by a man on a diet deficient in ascorbic acid but with no symptoms of scurvy. No rise in the excretion occurred until 1200 mg. had been taken. The excretion rose to an average of 48 per cent. of the intake after 1600 mg. had been ingested, and to 75 per cent. after 3200 mg. had been ingested.

CASE 2.—A man was brought to hospital because he had fainted in the street. On examination he seemed ill with a temperature of 100° F. and was admitted to hospital. Although there were no symptoms of scurvy, the diet which he had been eating seemed as deficient in ascorbic acid as that of the man with scurvy (Fig. 2). The opportunity was taken to estimate the amount of ascorbic acid excreted first on an ascorbic diet, and then after a daily dose of 400 mg. of pure ascorbic acid. The amount of ascorbic acid excreted was small (10–16 mg.) and no rise in the excretion occurred until 1200 mg. had been taken. The percentage output excreted after 1600 mg. had been eaten was 48 per cent., and after 3200 mg. 75 per cent.

CASE 3.—A healthy man who eats plenty of fruit was examined for comparison. A mixed diet was taken which contained potatoes and vegetables together with 125 c.cm. of tinned grape fruit and 70 c.cm. of tomato juice. The ascorbic acid content of this diet was 63 mg., not including that in the potatoes and vegetables. The excretion of ascorbic acid was 43 mg. and 54 mg. on the first and second day of the experiment. The diet was then changed to one containing no potatoes, vegetables, or fruit, but 400 mg. of ascorbic acid were taken each day for ten days (Fig. 3). The excretion rose to 262 mg. on the first day and to 418 mg. and 403 mg. on the second and third days. The urine was not collected on the fourth and fifth days, but on the sixth day 416 mg. were excreted. During the next four days the same diet was taken without the addition of the ascorbic acid. The excretion decreased to 92 mg. on the first day and to 23 mg. on the fourth day. The total ascorbic acid excreted on the second, third, and sixth days was 1236 mg. and the known intake was 1200 mg. This apparent discrepancy is explained by the high intake of the previous diet. It is impossible to say what percentage of the intake was excreted, but it must have been over 90 per cent.

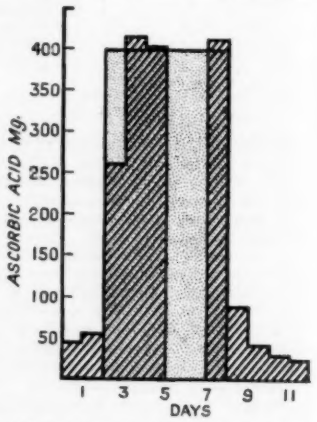


FIG. 3.—Showing the rapid rise in the excretion of ascorbic acid in a healthy man whose previous diet had contained much fruit to whom 400 mg. of ascorbic acid was given over a period of six days. In two days the excretion had amounted to more than the known intake, showing the high previous content of the diet.

DISCUSSION

Abbasy, Harris, Ray, and Marrack [6] have recently published some very interesting experiments on the excretion of ascorbic acid. They suggest that the estimation of ascorbic acid excreted after a single test dose is of great value in demonstrating the presence of vitamin-C subnutrition. When a healthy adult, whose habitual level of excretion was 33 mg. of ascorbic acid, was given 600 mg. he excreted 161 mg., or 27 per cent., of the dose; whereas when the level was only 14 mg., 35 mg., or 6 per cent. of the 600 mg. administered, were excreted, and when the level was 8 mg. the excretion rose only to 17 mg., that is, 3 per cent. of the amount taken in. Wood [7] has performed this test on a woman with mild scurvy. No ascorbic acid had been detected in the urine on the day before the test and only 1·7 mg., or 0·3 per cent. of the 600 mg. ingested, was excreted in the urine. These observations after a single test dose undoubtedly show that a deficiency of ascorbic acid exists, but they do not, in our opinion, give such full information as the observation of the amount of ascorbic acid which must be given before the percentage output rises above 75 per cent. In our case of scurvy (Case 1) the significant rise in the excretion occurred when 1700 mg. had been given in comparison with 600 mg. in Johnson and Zilva's [8] man, and with 1200 mg. in Case 2, and 1400 mg.

in Harris and Ray's case.[9] This is a very small difference, and it would be difficult to know where to draw a line between scurvy and a potential case of scurvy, and a case of vitamin-C subnutrition. The percentage output in Johnson and Zilva's case rose to 56 per cent. after 1360 mg. and to 87 per cent. after 1480 mg. had been taken; and in Harris and Ray's case it rose to 77 per cent. after only 1480 mg. had been taken, and in our Case 2, although it reached 48 per cent. after 1600 mg. had been ingested, it did not reach 75 per cent. until 3200 mg. had been eaten. In Case 1 of our series the percentage output did not exceed 53 per cent. even after 4950 mg. had been eaten.

The observation on our single case of scurvy suggests that the percentage output is much more valuable evidence that a patient has scurvy than the amount of ascorbic acid taken before the excretion increased, or the amount excreted after a test dose.

We have to thank Miss J. Marks, M.P.S., for much assistance in the estimation of the ascorbic acid, and Miss Cambell, the sister of the ward, for her care in supervising the diet and collecting the urine.

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THE TREATMENT OF CARCINOMA OF THE CERVIX UTERI BY THE STOCKHOLM TECHNIQUE AT THE LONDON HOSPITAL

1929 AND 1930

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DURING the two years 1929 and 1930, 71 cases of carcinoma of the cervix uteri were referred to the obstetric and gynæcological department of the London Hospital for treatment. No case, however advanced, was refused treatment.

Four early cases were treated by Wertheim's hysterectomy (2 of these were complicated by pregnancy and the other 2 were considered exceptionally good subjects for a major surgical operation). The subsequent history of these 4 cases is as follows:—

One died of recurrence 1 year and 5 months after operation.

One was dying of recurrence when last seen 2 years and 8 months after operation.

One was alive and well when last seen 1 year and 9 months after operation.

One is alive and well more than 5 years after operation.

The remaining 67 cases were treated with radium by a technique as similar as possible to that published by Forssel and Heyman from Radiumhemmet, Stockholm. In brief, the treatment has consisted of three applications of radium, with intervals of 7 and 21 days, each application consisting of about 120 mg. of radium element, partly intra-uterine and partly vaginal. The duration of each application has been 22–24 hours, and a heavy screenage—equivalent to 2 mm. of lead in 1929 and to 3 mm. of lead in 1930—has been employed.

For various reasons 14 of the cases did not receive the complete treatment (9 cases received two applications only and 5 cases one application only). Three of these patients died in hospital before treatment could be completed; 7 other cases were so advanced (Stage III. or IV.) and their reaction to radium was so unsatisfactory that it was deemed inadvisable to proceed with treatment; the remaining 4 were Stage II. cases and failed to come in for further treatment although advised to do so. All these 14 patients are now dead.

Until the autumn of 1930 no really effective deep X ray therapy was available for the treatment of these cases, and in this series it has been used only for the treatment of definite clinical recurrence in the pelvis arising some time after the original radium application.

DIAGNOSIS

Although some authorities are of the opinion that there is some danger of disseminating malignant cells by removing a fragment of a malignant growth for histological examination, we have felt that the advantage of confirming the macroscopic diagnosis by this means outweighs this debatable objection. In this series the diagnosis has been confirmed histologically in all 4 cases treated by Wertheim's hysterectomy, and in addition the uteri removed at operation have been preserved. In the 67 cases treated with radium the diagnosis has been confirmed histologically in 59 cases; in the remaining 8 cases in which the nature of the growth was unproved histologically, 6 have died of recurrence, 1 is untraced, and 1 only is alive and well more than five years after treatment.

RESULTS

The results of treatment with radium are set out in Table I.

TABLE I

	Cases.
Died in hospital during treatment (primary mortality 4·5 per cent.)	3
Died within first year after treatment (4 had secondary medium X ray therapy)	19
Died within second year after treatment (3 had secondary deep X ray therapy)	10
Died within third year after treatment (1 had secondary deep X ray therapy)	11
Died within fourth year after treatment (1 had secondary deep X ray therapy)	2
Died within fifth year after treatment (1 had secondary deep X ray therapy)	3
	48
Local recurrence in cervix 4½ years after treatment. Still alive after recent fourth application of radium	1
Recurrence in bladder 19 months after treatment. Now alive and well 4½ years after fourth application of radium to recurrence	1
Recurrence in bladder 14 months after treatment. Now alive and well 5¼ years after fourth application of radium to recurrence	1
Alive and well with no clinical evidence of any recurrence more than 5 years after treatment (1 had secondary deep X ray therapy)	15
Untraced	1
	67

It will be seen that there are 16 five-year cures out of 67 cases treated with radium—that is, 24 per cent.

The 59 cases treated with radium and proved histologically to be carcinoma consisted of 54 in which the carcinoma was epidermoid in structure and 5 in which it was of glandular columnar-celled type. In the former group 14 are alive and well after more than 5 years, and in the latter 1 patient is alive and well after a similar period.

In Table II. these 67 cases treated with radium are grouped into the four stages according to the anatomical extent of the growth recommended by the Radiological Sub-Commission of the League of Nations, Geneva, 1929.[1] The following results are shown:—

TABLE II

				Per cent.
Stage I. ..	15 cases with	6	five-year cures ..	40
,, II. ..	20 ,, ,,	6	,, ...	30
,, III. ..	25 ,, ,,	4	,, ...	16·6
,, IV. ..	7 ,, ,,	0	,, ...	—

Stages I. and II. constitute cases probably operable, and if the results are combined then there are 35 cases *with 12 five-year cures—34·3 per cent.* When Stages III. and IV., which constitute the cases probably inoperable, are combined then there are 32 cases *with 4 five-year cures—12·5 per cent.*

Table III. represents an analysis of the effect of age-incidence of the disease on the results obtained with radium treatment in this series of cases.

TABLE III

Age.	Cases.	Five-year cures.
20–29	2	0
30–39	7	3
40–49	25	3
50–59	19	6
60–69	9	3
70–79	5	1

The high primary mortality of 4·5 per cent. is due to 3 deaths occurring during treatment in hospital.

CASE 21.—This patient had a Stage II. carcinoma of the cervix, which was treated with one Stockholm application of radium. Under the same anæsthetic a primary carcinoma of the left breast was treated by the insertion of surgical radium needles. The patient died one hour after her return to the ward, and a post-mortem revealed that the cause of death was hæmopericardium secondary to perforation of the heart by a radium needle inserted under the left breast penetrating an intercostal space. If this case is excluded—and the death cannot reasonably be attributed to the Stockholm treatment of carcinoma of the cervix—then the primary mortality is 2 cases out of 67, that is, 3 per cent.

CASE 31.—A patient, aged 70, with Stage II. growth, died eight days after the second application of radium with spreading peritonitis. Post-mortem examination revealed gangrene and infection of the left half of the fundus of the uterus. The growth was scirrhous, constricting the cervical canal, and associated with pyometra. Had the pyometra been drained for a week or ten days prior to radium treatment, then in all probability this death would not have occurred.

CASE 53.—A patient, aged 22, with a Stage IV. growth, had a marked febrile reaction and recurrent secondary hæmorrhages following the first application of radium. She remained in hospital for twelve weeks and died ten days after the second application of radium. This death can be more fairly attributed to the final stages of the disease than to its treatment with radium.

TABLE IV

Year.	Number of cases.	Percentage of five-year cures.
1920	96	27·1
1921	115	23·5
1922	130	20·0
1923	105	23·8
1924	149	23·5
1925	134	14·2
1926	143	25·9
1927	143	25·9
1928	128	23·4
1929	152	30·3

An abstract of the results of treatment of carcinoma of the cervix uteri with radium at Radiumhemmet, Stockholm, for the years 1920 to 1929,[2] is given in Table IV.

If these ten years 1920–29 are combined, then 1295 cases of carcinoma of the cervix were treated at Radiumhemmet with 308 five-year cures. This gives an average five-year cure per year of 23·8 per cent.

The treatment of the cases described above has been entirely carried out in the obstetric and gynæcological department at the London Hospital by Mr. Eardley Holland, Mr. Victor Lack, and myself. I am immensely indebted to my senior colleagues for allowing me to organise the treatment, and for allowing me to follow up and publish their cases. It is only their consistent adherence to our agreed technique that has made it possible for us to establish the value of this treatment in a consecutive series of cases. I am also indebted to the Yarrow research fund of the London Hospital for financial help in the initial years of organisation.

The secondary, medium, and deep X ray therapy, when employed, was entirely prescribed and supervised by Dr. G. E. Vilvandré and Dr. M. H. Jupe, the honorary radiologists to the hospital.

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APICAL THORACOPLASTY

WITH A DESCRIPTION OF RECENT MODIFICATIONS IN TECHNIQUE

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SURGEON TO ST. THOMAS'S HOSPITAL AND THE CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST; AND

T. HOLMES SELLORS, D.M., M.Ch. Oxon., F.R.C.S. Eng.

ASSISTANT SURGEON TO THE CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, QUEEN MARY'S HOSPITAL, AND THE ROYAL WATERLOO HOSPITAL

THE increasing use and popularity of upper partial thoracoplasty in the treatment of tuberculous cavities in the lung has led to the development of this operation as a specialised procedure aiming at permanent collapse of these excavated areas, yet still leaving the base and greater part of the lung as a functioning organ. In a previous paper we have outlined the principles which govern the selection for surgical treatment.

In the case of an apical thoracoplasty the operation has usually been an exaggerated form of the upper stage of the standard Sauerbruch paravertebral operation involving resection of considerable lengths of the upper four or five ribs under which the diseased area lies. Pulmonary collapse is obtained by a threefold movement of the divided ribs. The posterior cut ends of these anterior portions fall inwards and downwards so that the end of the first rib may lie in close proximity to the second and third transverse process. A certain amount of lateral collapse is also obtained by the downward swing of the main curve of the ribs—the so-called "bucket-handle" action—but in the upper chest this effect is not nearly so noticeable as in the lower part. Whereas the posterior part of the lung apex is set free, the remainder is held attached to the deep aspect of the first rib and, as may be judged from X ray films, undergoes only a small descent. The main part of the collapse is effected in the transverse rather than in the vertical axis.

This form of thoracoplasty not infrequently fails when the cavity is centrally placed or is lying close to the mediastinum. The cavity admittedly becomes reduced considerably in size, but may persist in part as a pear-shaped slit with the long axis vertically placed. The lesion then still remains as an open source of infection and the only remedy for this state of affairs is the performance of an anterior and/or lateral supplementary rib resection. (Figs. 1 and 2.) The amount of scarring produced by the original operation precludes the successful practice of any form of extrapleural pneumolysis as a subsidiary procedure.

It has been common practice in certain hands to facilitate the amount of collapse obtained by an apical thoracoplasty by means of extrapleural stripping. Semb and Holst in a large number of cases have carried this dissection posteriorly into the paravertebral gutter removing the heads of ribs and upwards over the lung dome allowing fascia and muscular bundles to add their weight to the collapsing lung. Radiologically this collapse obtained by this "extrafascial apicolysis" is definitely superior to that produced by the standard operation, but the vertical fall of the apex does not always ensure collapse of cavities close to the mediastinum.

Our experiences with extrapleural pneumolysis and extensive stripping of the parietal pleura from the ribs carried out from in front preparatory to filling the cavity with paraffin wax have led us to believe that the danger of stripping the pleura from the mediastinum is negligible—a fear that has presumably hindered the common practice of this form of mobilisation over a large area. It was consequently decided to perform the stripping over the whole diseased area of the apex in addition to performing the ordinary form of extensive removal of the upper ribs. Gravesen has given the name "cupolaplasty" to this form of operation. A necessary factor in performing this type of operation, as with any form of extrapleural pneumolysis, is fusion of the pleural membranes over the area to be collapsed. This is more commonly found than might be expected, for most of the cases are of long standing and pneumothorax treatment has previously been tried and failed,

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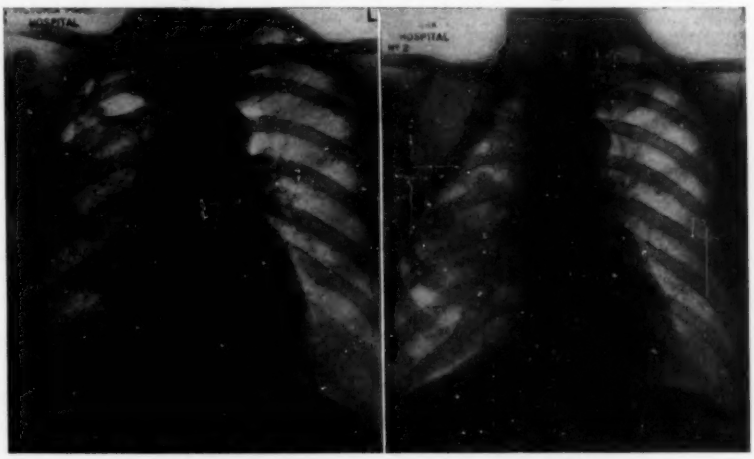

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FIG. 1.—Big right apical cavity. Small pneumothorax space towards apex. Right diaphragm raised.

FIG. 2.—After posterior thoracoplasty of upper five or six ribs followed by anterior thoracoplasty Ribs 2 to 4. The cavity though greatly diminished can still be seen below the clavicle at the level of the fourth to fifth vertebræ. This illustrates the persistence of a cavern in spite of extensive rib-resection.

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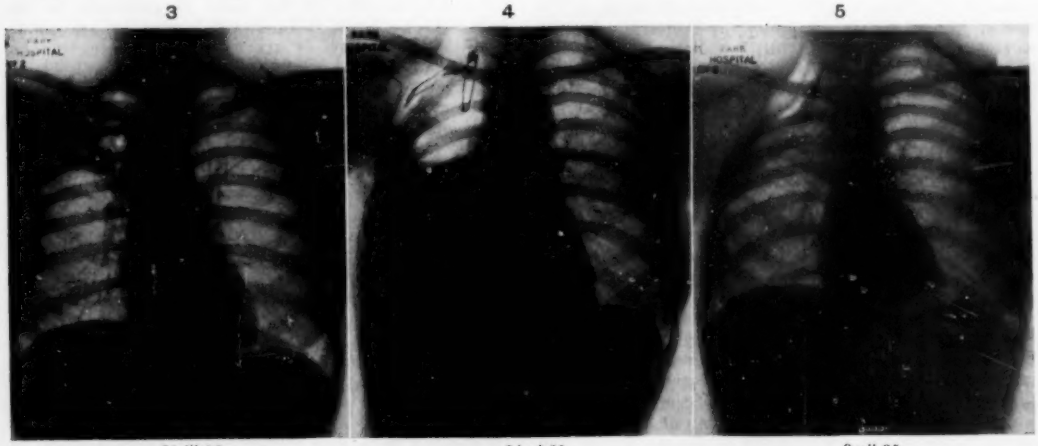

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FIG. 3.—Right localised upper zone disease showing fibrosis and cavity formation.

FIG. 4.—After complete apicolysis and resection of Ribs 1 to 4 fluid level is seen and is extrapleural with dense zone of compressed lung tissue between it and the diaphragm.

FIG. 5.—Three weeks later fluid was absorbed and lung has re-expanded, but not above the level of the fourth to fifth transverse processes.

or tried and abandoned. The pneumothorax has usually been abandoned on account of the presence of adhesions over the diseased apical area. Even in cases in which we might have had some doubt as to whether the pleural cavity was completely adherent over the operation field there has been no untoward circumstance such as might be occasioned by tearing of the parietal pleura.

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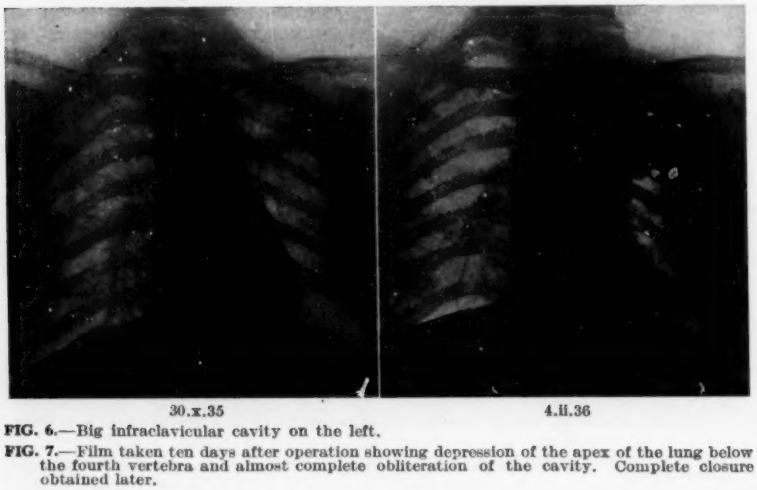

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FIG. 6.—Big infraclavicular cavity on the left.

FIG. 7.—Film taken ten days after operation showing depression of the apex of the lung below the fourth vertebra and almost complete obliteration of the cavity. Complete closure obtained later.

TECHNIQUE

The operation commences as an ordinary upper thoracoplasty, and the muscles attached to the vertebral border of the scapula are divided through a J-shaped incision made midway between the scapula and spinal column. The scapula is lifted off the chest wall and the upper ribs are exposed. The periosteum of the third and possibly the second ribs is removed and an extensive length of both bones removed. Before proceeding to do anything to the first rib this stripping is done, and it immediately renders the subsequent removal of a long length of the first rib considerably easier. To effect the stripping the finger is carefully worked into the rib-bed until the space normally occupied by the endothoracic fascia is found. The plane of separation is easily recognised and dissection is carried upwards and outwards with the fingers within the rib framework until the whole of the apex is freed. Steady and careful pressure enables this stripping to be done without difficulty, though occasional resistance is encountered in the form of firm bands of adhesions. These, however, can be overcome safely so long as the finger pressure is kept well to the deep surface of the ribs. When the apex is free it falls downwards to a marked degree and if further depression is required it can be carried out beyond the lower limits of the third rib. There is slight oozing from the raw bed, but this stops readily and the apex can be held down with a swab while the remaining part of the rib-resection is performed. These ribs are now freed of their periosteum preparatory to their resection, and one of the chief advantages of the preliminary stripping lies in the fact that the deep surfaces and even the anterior parts of the upper two ribs can be easily reached. It is possible to remove the whole of the upper two ribs without encountering any of the difficulties that occur in other forms of this operation. At times removal of a further length of the anterior part of the third rib is carried out, it being recalled that a section of this rib had been removed preparatory to stripping. Then according to the amount of collapse required part of the fourth and/or fifth ribs are resected. We have made it customary to grade the collapse and prevent a sharp shelf being left by removing a short piece of bone in the rib or two below the major part of the resection.

The operation is completed by suture of the muscles and skin after hæmostasis has been assured. Originally we omitted drainage of the wound in the hope that the blood-stained serum that was bound to collect would act as a pad in the dead space and would help to maintain the collapse, until such time as the soft tissues had time to fall in and obliterate this space. The risk of infection, however, is considerable and in consequence we prefer to drain the wound for several days.

There is certainly some tendency for the stripped apex to re-expand unless the rib-resection has been extensive, and to overcome this we have, in a few cases, divided the intercostal periosteo-muscular bundles either anteriorly or posteriorly and sutured them to each other and to the inner aspect of the thoracic cage at a lower level so as to form a grid or coarse meshwork close over the depressed apex. As periosteal regeneration occurs, this forms a rigid barrier beyond which the lung cannot re-expand.

RESULTS

The amount of shock produced in an operation of this character is very little greater than that produced by a rib-resection of the same magnitude; in no case have we found it necessary to perform an operation involving five or six ribs in two stages. As against this it must be admitted that the convalescence is rather more disturbed over the first few days—the temperature and pulse are raised and if a big cavity is present there is usually abundant sputum about the third to eighth day, but pain is not conspicuous, nor is the deformity any more noticeable than with a simple thoracoplasty. The risk of infection of the dead space in this type of patient has been noted, but such infection occurred only in cases that were not drained, and did not lead to serious ill-effect.

X ray films taken shortly after the operation show a collection of fluid lying over the lung apex which is often depressed almost to the level of the hilum. This fluid certainly adds to the collapse actually produced by the stripping, but as time goes on the fluid is absorbed and the upper limit of the lung edge rises to a small extent before becoming stationary. In dealing with firm-walled apical cavities there is no doubt that the operation produces a radiological collapse far superior to that obtained by any other procedure that we have employed with the possible exception of extrapleural pneumolysis with wax implantation. But this latter is accompanied by the

not infrequent complication of extrusion of the wax at a very variable period after the operation.

The following cases illustrate the results obtained with the combined pneumolysis and thoracoplasty:—

1. Woman aged 23. Chronic left apical disease with cavity known to be present three years. A.P. (artificial pneumothorax) failure. Complete apical stripping with resection of upper four ribs. Total length of rib removed, 22 in. Cavity obliterated rapidly. Patient started to put on weight a fortnight after operation. No. T.B. (tubercle bacilli) in sputum.

2. Man aged 26. Extensive right upper zone cavitation. A.P. failure. Complete apical stripping with resection of upper five ribs. Total length of rib removed, 21 in. Good apical collapse was obtained.

3. Woman aged 20. Right apical fibrocavernous disease. A.P. failure. T.B. +. Complete mobilisation of apex with resection of ribs, 1, 2, 3, and part of 4. Total length, 16 in. Wound not drained. Thin seropurulent fluid collected in the dead space and discharged through the wound on the twelfth day. The sinus ultimately closed. Patient has put on over 2 st. in weight. T.B. absent. (Figs. 3–5.)

4. Man aged 31. Right apical cavities. T.B. ++. A.P. failure. Complete apical stripping and resection of ribs 1, 2, 3, 4, and part of 5. Total length, 18½ in. A "grid" of muscle and periosteum. Wound not drained. Collection of fluid in dead space compressed lung and about three weeks after operation broke through into a bronchus. Blood-stained fluid was coughed up for several days and the extrapleural cavity emptied. Ultimate result good. T.B. absent.

5. Man aged 34. Large single cavity of left apex. T.B. +. Complete apical stripping and resection of ribs 1, 2, 3, 4, and 5. Total length 26 in. A "grid" was made over the apex. Successful collapse. Highest point of lung lies between the levels of the fourth to fifth transverse processes. (Figs. 6 and 7.)

As regards the end-results it is too soon to judge. The operation, however, has as its primary aim closure of cavities and in this it would appear to be more satisfactory in selected cases of localised apical disease than any method that we have previously employed.

STENOSING TENDOVAGINITIS AT THE RADIAL STYLOID PROCESS

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Stenosing tendovaginitis was first described by de Quervain[1] in 1895, and subsequently by Hoffmann[2] in 1898. Since that time nearly 200 cases have been reported, mostly by continental writers. We are aware of only one case recorded in this country[3]; yet the condition is by no means uncommon, and it is perhaps almost the only cause, in our experience, of pain in the region of the styloid process of the radius with disability in movements of the thumb. Stenosing tendovaginitis occurs far more often in women, but among our 28 cases there were 3 men. In this series the ages range from 15 to 49, the commonest age being about 35. There was usually a history of some two to four months' pain, coming on insidiously without definite history of trauma. The majority of the women were engaged in household work, and the commonest complaints were of pain on wringing and a tendency to drop things, particularly in movements involving radial abduction, as in lifting a kettle. The condition sometimes occurs in an acute form in turnip toppers, but this occupation being seasonal it seldom becomes chronic in these patients.

The symptoms and signs are typical. Strong active abduction of the thumb is painful. There is a visible swelling over the styloid process of the radius (Fig. 1), which in some cases may partially obliterate the anatomical snuffbox. It extends for a short distance up the radius, and there is tenderness over the swelling.

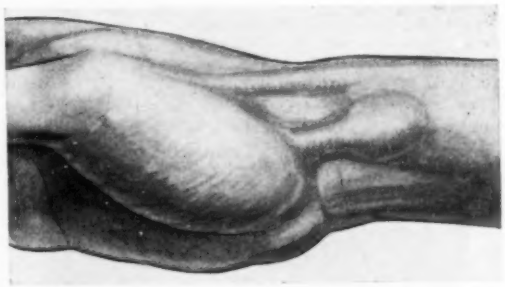

FIG. 1.—Drawing showing a particularly well-marked swelling; more commonly the swelling is less definite.

The diagnosis is certain if, on grasping the patient's thumb and quickly adducting it, there is sharp pain over the styloid process. The condition is due to obstruction of the free movements of the tendons of the extensor ossis metacarpi pollicis and extensor brevis pollicis as they pass beneath the dorsal carpal ligament.

Morbid Anatomy.—The fibrous tendon sheath of the two tendons is thickened, and in severe cases may be as much as four times the normal thickness, which is 1/32 in.[4] The lumen of the sheath is narrowed. In mild cases the slight thickening of the tendon sheath may be the only finding, but in the more severe cases the narrowing of the lumen produces a constriction and even flattening of the tendons, which may be bulbous beyond the constricted area. The thickened sheath may have lost its lustre and be brownish in colour; new blood-vessels may be observed in it. It may have an almost cartilaginous consistency, and frequently appears hyaline or œdematous. Occasionally there is a synovial effusion, but the synovial membrane is not thickened and may be absent, with consequent adhesions to the tendon. These adhesions, composed of new fibrous tissue, appear almost like a pannus, and are not readily stripped from the tendon.

A section of the thickened sheath shows large quantities of new fibrous tissue, which is markedly cellular. A few new blood-vessels may be observed surrounded by lymphocytes and an occasional plasma cell. In the more superficial layers, which appear to be those of the original sheath, elastic fibrils are present. Some of the fibrous tissue shows mucoid degeneration.

Differential Diagnosis.—The only other conditions likely to be confused with this one are fractures of the scaphoid, in which there is tenderness in the anatomical snuffbox with weakness of the wrist. But in these cases there is no tumour, and the diagnosis is confirmed by radiography. The more difficult differential diagnosis is from sprain of the external

lateral ligament of the wrist, which is a much less common condition. Careful examination will show that the tenderness is limited to an area distal to the radial styloid process, and whereas adduction of the whole hand is painful, that of the thumb alone is not so.

Treatment.—Cases have been reported where fixation of the thumb in abduction has relieved the

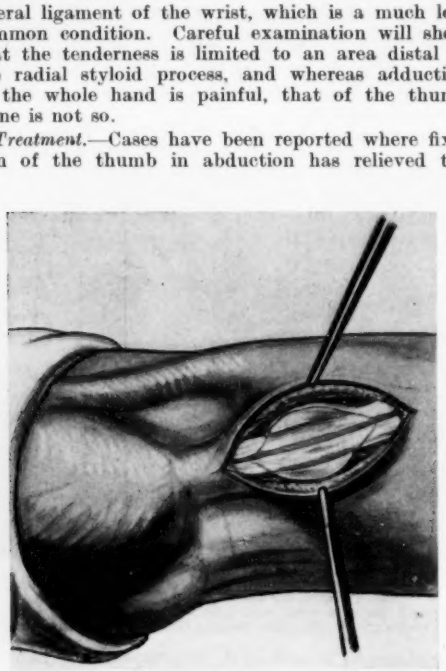

FIG. 2.—The short extensor tendons are exposed and the superficial part of the thickened sheath cut away showing this structure in section.

symptoms (Hoffmann), but in three of our earlier cases this method was unsuccessful. de Quervain first treated these cases by simple incision of the constricting sheath. This manœuvre produces immediate relief, and in no cases has it failed. It is therefore obviously the method of choice. Local anæsthesia is satisfactory. An incision is made through the skin over the swelling and the fibrous sheath partially excised (Fig. 2). The free motion of the tendons is immediately obvious, and only the skin need be sutured.

We have not considered it necessary to report our 28 cases in detail, as they are essentially similar and the results of operation are uniformly satisfactory. They may be summarised as follows:—

Analysis of 28 Personal Cases. (16 V. H. E. 12 B. H. B.)

3 males, 25 females, ages 15–49 (Mode. 35).

22 treated by operation. All cured immediately.

3 treated by plaster, with no permanent relief.

3 refused treatment. One of these went to another hospital, where manipulation was performed with no benefit.

With others, we have been struck by the similarity of this condition to the thickening of the tendon sheath which causes snap fingers and thumb. Similar thickenings have been found in other tendons about the wrist—namely, the extensor carpi radialis longior, the extensor carpi ulnaris, and the flexor carpi ulnaris.

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A CASE OF PEMPHIGUS ACUTUS

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THE following brief record of a case of pemphigus acutus (butcher's pemphigus) may be of interest on account of the rarity of the condition.

History.—The patient, a man of 21, commenced work as a slaughterman five weeks before admission to the Little Bromwich Hospital on Nov. 3rd. From Oct. 17th to 26th he had been treated for a septic finger—the result of a prick at work. On the day before admission he noticed some small red papules on his chin, which spread rapidly during the ensuing 24 hours, involving his cheeks and both upper limbs, many becoming vesiculated. His general health was good, but he reported to his doctor and was notified as a case of suspected glanders. The patient, who had lived in the country all his life, had never been vaccinated. Subsequent inquiries at the slaughter-house revealed that no animal had been slaughtered recently which was suffering from any unusual disease.

Examination on admission showed a well-developed youth whose face and upper limbs were the site of vesicular and pustular lesions, varying in shape and size, the largest being about an inch and a half in the greatest diameter. The majority were round, while some were oval and others irregular. All were surrounded by an area of inflammation. A few were umbilicated and others were discharging a seropurulent fluid. The lesions on the face were mainly confined to the chin and cheeks, the forehead being almost unaffected. The trunk was clear, but the extensor aspects of the thighs showed a few papules with some small vesicles. There was a small healing scar with a central scab over the first interphalangeal joint of the ring finger of the left hand. The tongue was heavily furred, while the throat was very congested and both tonsils were covered with a thin film of exudate. The breath was fœtid. Temperature 101° F.; pulse-rate 124; respirations 24. No evidence of a primary chancre could be found and the Wassermann reaction was negative. Fluid aspirated from the lesions gave no *Bacillus mallei* or *Streptothrix actinomyces*, but a good growth of non-hæmolytic streptococci was obtained.

Progress.—Lesions continued to appear for five days after admission, the scalp and back becoming involved, while the anterior aspect of the trunk remained clear. The throat was exceedingly painful and as a result swallowing was almost impossible, but no vesicles appeared on the throat or palate. The temperature remained elevated until the rash was fully developed, reaching a maximum of 103° F. on the evening after admission. The condition gradually subsided and except for a rise in temperature ten days after vaccination—which was performed on Nov. 4th and produced local pain and inflammation—convalescence was uneventful. The lesions slowly crusted and when these separated no scar was left. The patient was dressed three weeks after admission to hospital and discharged a week later. He reported a month after discharge when all that could be seen was slight bluish staining of the skin where the lesions had been. His general health was excellent.

Treatment.—The larger blisters were removed with scissors, leaving raw deeply congested areas, many showing a clear central vesicle. New vesicles were punctured as they appeared. Further treatment was directed to relieve the intense discomfort caused by involvement of so large an area of the body. A bland ointment consisting of three parts of lanoline and one part of olive oil with ½ per cent. carbolic acid was found beneficial when applied spread on thin muslin. Antistreptococcal serum (20 c.cm.) was given intramuscularly on the third day. When the temperature had settled he was given permanganate baths.

All the nursing staff while attending to him wore gowns, rubber gloves, masks, and goggles, and their arduous task was made very unpleasant by the putrefactive

odour which pervaded the room. His recovery is due to their untiring energy on his behalf.

The case is of interest for several reasons, namely: (1) The similarity of distribution to that of the lesions of small-pox and the rapidity with which they went through the same stages as the small-pox lesion. (2) The absence of any prodromal symptoms. (3) The slightness of the general disturbance considering what large areas of the body were involved. (4) The isolation of non-hæmolytic streptococci from the lesions, which are usually attributed to the diplococcus of Pernet and Bulloch. (5) The rapid recovery from a condition which in its severe forms is usually fatal.

I am indebted to Dr. J. McGarrity, medical superintendent of the hospital, for permission to publish this case; also to Dr. H. G. M. Henry, of the City Laboratories, for the bacteriological reports.

MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE

SECTION OF MEDICINE

AT a meeting of this section held on March 24th the chair was taken by Sir CHARLTON BRISCOE, the president, and Sir WALTER LANGDON-BROWN opened a discussion on the

Medical Aspects of the Menopause

No one, he said, could doubt the importance or the complexity of the subject. The special endocrine difficulties of the menopause could be referred to two causes: (1) the fact that woman, unlike other mammals, had no phase of anœstrus; and (2) the bisexual activity of the ovary. Woman started at the menopause a running-down of a clock which had never, since puberty, stopped going; the uterine endometrium knew no rest. The interdependence of pituitary and ovary was now recognised; the anterior lobe liberated œstrin. The study of basophilism had led to interesting physiological deductions. The basophils were inhibitors and the eosinophils were stimulators of the ductless glands. The medulla of the ovary had been described as male and the cortex as female. This bisexuality must greatly increase the upset of the organism when the female part ceased to function. The endocrine state before the menopause had a considerable influence on the abnormal conditions produced by this change. The stout, lethargic arthritic woman apt to have headaches would benefit by thyroid at the menopause; the thin excitable type would not. The obesity of the climacteric seemed to be of the pituitary type, but some women at this time took on an acromegalic appearance. It appeared that when the ovary began to fail the pituitary made a temporary effort to compensate by producing increased sex hormone, and this completely upset the balance. For this reason symptoms could often be relieved—though only temporarily—by giving œstrin. The adrenals also showed increased activity, and the thyroid was speeded up in the direction in which it was already tending.

The vascular changes did not include any intrinsic cardiac changes but there was temporary or permanent hypertension and vasomotor instability. The former might depend on basophilic pituitary activity; these cells often showed hyaline change. The instability seemed to be a direct result of lack of œstrin and the adrenals played a considerable part in its production. Blood pressure rose during shivering and fell steeply during the subsequent flushing. Œstrin preparations alleviated these symptoms, but in some cases they appeared years after oöphorectomy; possibly an undefined cellular change accounted for them. The diencephalon was now regarded as the head ganglion of the sympathetic nervous system and the centre for many emotional phenomena. It also influenced gastric motility. The pituitary was the intermediary between the diencephalon and the gonads.

Purely psychical factors must also be considered and the attitude with which a woman approached the change was of great importance. Women must not feel that their usefulness was ended but must make investments of interests to continue after the menopause. The hypothyroid type tended to suffer from the fibrocytic form of arthritis. The human corpus luteum did not produce a hormone to relax the pelvic ligaments at parturition—another penalty women had to pay for the upright position. Multiparæ often had a recurrence of backache at the menopause. Diathermy to the cervix was sometimes useful in this trouble, restoring some function to the ovary. But endocrine disturbances in most cases did no more than provide a suitable soil for joint disturbances. Treatment of the menopause was mainly symptomatic: iodine, liquor sedans, and small doses of thyroid were useful in suitable cases. Vasomotor symptoms were relieved by œstrin. Suggestion was a factor in the use of modern endocrine preparations. Menopausal women usually had an excess in the blood of the hormone found in the urine of pregnant women and this preparation was not, therefore, of any use. Valerian had a real sedative influence on the autonomic nervous system. The psychological part of the treatment must never be forgotten; often a time of retreat was desirable while the endocrine system settled down to a new and more stable equilibrium.

Dr. A. P. THOMSON analysed the cases coming to him as a general physician. The neglect of the subject in text-books was surprising. The best review of the subject was that published by the Medical Women's Federation in 1933. This had shown that 15 per cent. of women had no symptoms, while 10 per cent. were definitely disabled. The most numerous intermediate group presented the symptoms of an ordinary anxiety neurosis: the fear that their attraction and value would disappear and the fear of cancer. Among the poor the menopause was often welcomed. In a large group the symptoms of thyrotoxicosis threatened and came to nothing; radical treatment should be advised only with very great caution. Permanent thyroid changes dated from the menopause in rather less than 2 per cent. of the women reviewed by the Medical Women's Federation. The results of psycho-analysis in Dr. Thomson's cases had been bad. Women were frequently referred to him on the threshold of some gynæcological intervention to see if the heart would stand it. The murmur was usually due to simple anæmia and the patients were quite well in a month or two, their hæmorrhage and other menopausal symptoms having disappeared with rest and tonic treatment. He suggested that no woman should be submitted to operation until simple medical measures had been tried. Some doctors had an odd faith in insulin for uterine hæmorrhage; if insulin really inactivated œstrin diabetics would have menorrhagia instead of the usual amenorrhœa! A simple and

valuable treatment was bleeding, which had been widely used in the sixteenth century, and certainly relieved flushing, especially if there was hyperpiesis. The most important late symptom was obesity; it occurred twice as often in married women as in single ones. This seemed to relate to their greater ability to take care of themselves, whereas the single woman had to carry on. An arthritis of the knees might occur in women at the menopause who became fat, owing to wear and tear; but Dr. Thomson had never seen a case in a thin woman. The psychotic group represented the physician's failures. Quite a large number of alcohol and drug addictions began at the menopause.

THE PITUITARY AND OVARIAN RELATIONSHIP

Dr. P. M. F. BISHOP said that the gradual decline of ovarian activity was undoubtedly the starting-point, and a compensatory over-secretion of prolan A followed. It seemed logical to treat with œstrin, and this had met with some success. The symptoms, however, were not due to withdrawal of œstrin but to the presence of prolan A; they did not appear until four or six weeks after oöphorectomy. The prolan A curve ran more or less parallel with the hot flushes. Œstrin damped down the prolan A production. When both prolan A and œstrin were absent from the urine, hot flushes never appeared. Prophylactic treatment seemed highly undesirable. The object of œstrin administration was not to cut out prolan A altogether but to keep it down and let the patient become gradually accustomed to higher and higher levels of it. There was usually no need for high doses or injections, or of œstrin estimations. Doses of 500–1000 international units were generally sufficient; and the flushes themselves were a good enough indication of the imbalance. Patients often said they felt well during œstrin treatment; and a valuable change of mental attitude was sometimes effected thereby.

Dr. F. STOLKIND thought reassurance was very valuable treatment. Endocrine preparations by mouth were waste of time and money and the results from injections were probably psychological. He had not seen any benefit from diathermy to the cervix, bleeding, or psycho-analysis.

Dr. A. H. DOUTHWAITE agreed that menopausal arthritis of the knees was simply an osteo-arthritis related to the increased weight, but questioned whether there were not also a true rheumatoid arthritis related to the menopause, less crippling than in younger people and very resistant to treatment. Complete achylia often suggested chronic gastritis in these cases and the blood uric acid was above normal, though lowering it did not relieve the symptoms. Venesection did relieve symptoms if hyperpiesia was present.

Dr. PHILIP ELLMAN mentioned a syndrome of obesity, arthritis, and hypertension in women with definite hypothyroidism. The disturbance of equilibrium due to excessive fat produced the joint changes. Astonishing results were obtained by thyroid medication, especially relief of the arthritic symptoms. Menopausal acromegaly was another syndrome, and in one case had been repeatedly relieved by intrapelvic diathermy—possibly for psychological reasons. The syndrome of obesity, hypertension, and hypothyroidism was not an uncommon late sequel of artificial menopause with removal of the ovaries.

Sir WALTER LANGDON-BROWN, in reply, agreed that many women looked forward to the menopause as a chance of pursuing their intellectual interests without interference. Cancerophobia was one of the commonest diseases of the day. The high percentage of achlorhydria was probably a factor of increasing age. Psychological treatment was of the greatest importance but formal psycho-analysis was likely to do more harm than good.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY

A MEETING of this society was held in Sheffield on Feb. 28th, with Dr. RUTH NICHOLSON, the president, in the chair. A joint communication on

Radium Treatment of Carcinoma of the Cervix

was made by Prof. W. FLETCHER SHAW and Prof. DANIEL DOUGAL. They had been struck by the fact that although radium treatment of carcinoma of the cervix had been practised in this country for many years, there had been singularly few reports based on five years' freedom from recurrence. The staffs of institutions where radium treatment was carried out had stated that they were obtaining good results but had not as yet published any figures comparable with those from foreign clinics. On the other hand, the results likely to be obtained by the Wertheim operation were well known. Unfortunately this operation entailed both a high immediate mortality and a long and trying convalescence, and for this reason most gynæcologists would undoubtedly have been prepared to abandon it if convincing evidence had been produced by the radiologists that radium treatment could give equally good results. Such evidence had not as yet been forthcoming in this country and for this reason Prof. Shaw and Prof. Dougal had determined in 1928 to purchase their own supply of radium and to treat their own cases both in private and in hospital. As this step was in the nature of an experiment, it was decided to treat all cases by the same method and to follow up every case with the idea of publishing results as soon as a sufficient number had been collected.

After due consideration the method of Heyman of Stockholm had been chosen, with certain modifications suggested by Dr. Helen Chambers and Prof. S. Russ of the Middlesex Hospital. Forty milligrammes of radium, suitably screened, was inserted into the uterine cavity and 60 mg. in three box applicators was applied to the cervix and vaginal fornices. Each patient was treated on three occasions for 24 hours, with an interval of one week between the first and second application and three weeks between the second and third application. The cases treated up to Jan. 1st, 1931, numbered 94, and the results five years later were:

Alive and well five years later	39 (41·4%)
Dead or untraced	55 (58·6%)

The immediate mortality was 2·1 per cent., one patient having died from peritonitis and one from pulmonary embolism. Microscopical confirmation had at first not been carried out in advanced cases, because the diagnosis in such cases was deemed to be so definite to an experienced clinician that confirmation was unnecessary. Later, when it was realised that readers of the report would not have seen the cases, and would have to accept the diagnosis on the authors' unconfirmed statement, a piece of growth was excised for laboratory examination as a routine. Microscopical examination was therefore carried out in about half the cases; but those not so examined were so advanced that no error in diagnosis was possible.

In considering the results with regard to the stage of the growth, the classification of the radiological subcommittee of the League of Nations Cancer Committee had been adopted.

Stage.	Cases.	Alive.	Dead.
I.	11	7	4
II.	27	12	15
III.	40	17	23
IV.	10	1	9

Six cases were unclassified.

Two patients with cervical stump carcinoma following subtotal hysterectomy were included, and both died of recurrence. These cases should perhaps have been omitted, for it had obviously not been possible to follow the full routine as regards application.

In considering the question of radium versus the Wertheim operation, the results in the present series (94 cases with 41·4 per cent. of five-year cures) could be compared with the surgical results of Bonney (384 cases with 39 per cent. five-year cures) and Fletcher Shaw (154 cases with 38·3 per cent. five-year cures). The operability rate had also to be taken into consideration (Bonney 63 per cent.). Prof. Shaw and Prof. Dougal considered their series a small one; whether the high percentage of freedom from recurrence would be maintained when they had larger figures remained to be seen. But they were convinced that the results with radium were better than those with Wertheim's hysterectomy. At the same time they were by no means satisfied with figures which showed less than half the patients alive after five years. Certain of their patients were now having deep X ray therapy after radium treatment, but this had been done for too short a time to allow of any comparison of results. They were convinced that the surgical treatment of carcinoma of the cervix was a thing of the past.

The PRESIDENT congratulated Prof. Shaw and Prof. Dougal on the excellence of their results. She read on behalf of Mr. P. Malpas the figures from the Liverpool Radium Centre, of cases treated during the years 1929 and 1930, the total five-year survival-rate of all cases treated being 33 per cent. The method used was that of Heyman, followed by deep X rays.

Mr. J. W. BURNS asked if any of the patients had suffered from annular constriction of the rectum after treatment. He had observed the condition in 2 cases. He also expressed the view that radium therapy was well worth while even in very advanced cases, since it relieved pain and made the end easier.

Mr. T. F. TODD commented on the excellence of the results obtained, which he regarded as far and away ahead of anything else so far achieved. Except for one single year's results from the Marie Curie Hospital, he knew of nothing comparable in the international literature. He considered radiation definitely preferable to surgery even in early cases; at least eight of the international radium centres had published a five-year survival-rate of over 50 per cent. in operable cases—i.e., 10 or more per cent. better than surgery. Mr. Todd recalled Beckwith Whitehouse's published figures of 500 cases treated at several teaching hospitals in this country, with a five-year survival-rate of about 11 per cent.

Dr. FRANK ELLIS gave figures from the Jessop Hospital for Women, Sheffield, showing a 30 per cent. five-year survival-rate. It was customary in Sheffield to perform Wertheim's operation on Stage I. cases (if fit for operation) after preliminary radiation. If the tumour was bulky and infected the patient had (1) X ray treatment for two weeks to the whole pelvis; (2) two weeks' rest with douches; (3) radium; (4) one day later, Wertheim's operation; and (5) further X ray treatment to the whole pelvis if glands were found to be involved. If the tumour was small and uninfected, the procedure was: (1) single dose of radium; (2) one day later, Wertheim's operation; and (3) a full course of X rays to the whole pelvis if glands were involved. Cases in Stages II., III., and IV. were given X rays, radium, and then X rays again. Dr. Ellis showed a series of slides, indicating the technique of the methods employed; also a slide to show the type of X ray burn of the skin, which while healing perfectly might be thought by the uninitiated to indicate an overdose—being in reality the dose aimed at. He also quoted Döderlein's figures in operable cases which showed 80 per cent. five-year cures after complete radiation, as compared with 46 per cent. after operation. They afforded adequate reason for Döderlein having given up the operative procedure.

Dr. E. A. GERRARD drew attention to the excellence of the results in a series of cases which had been handled entirely by gynæcologists, without resort to their radiological colleagues. Was this a point of importance—even significance? He thought so, particularly as there was a growing tendency in certain areas for the general practitioner to refer malignant cases directly to the radiologist. Was this in the best interests of the patient? The radiologist could hardly be expected to have had a wide experience in a special branch like gynæcology. The diagnosis in carcinoma of the cervix, particularly of the endocervical type, was not always easy, and the correct application of the radium was liable to present real difficulty unless the operator was regularly engaged in vaginal surgery.

Mr. J. E. STACEY advocated Wertheim's operation in first-stage and early second-stage cases—along with radiation, as this precluded the ill-health from cystitis, proctitis, &c., which was liable to follow if radiation alone were employed. He believed that coöperation between gynæcologist and radiologist was advisable; the gynæcologist should diagnose the condition and the radiologist should decide the dose and apply the treatment.

Prof. MILES PHILLIPS also advocated the coöperation of gynæcologist and whole-time radiologist. He laid stress on the necessity of doing all one could to prevent carcinoma by the ruthless removal of the cervix whenever it was found in a badly damaged or chronically infected condition. The fact that the annual mortality-rates showed, for a number of years, a steadily falling death-rate from cancer of the uterus, whereas that from cancer in all other organs was increasing, was at least highly suggestive that this method of preventive treatment was becoming effective.

Dr. I. A. B. CATHIE spoke of the grading of tumours as an aid to prognosis. He was inclined to disagree with the prevalent idea that the columnar-cell type of growth was resistant to irradiation.

Prof. DOUGAL, in reply, said that Prof. Shaw and himself, recognising that their series was a small one, realised that they might have been fortunate in their results. He agreed with Mr. Todd that there was now no justification whatever for the Wertheim operation. He had seen one case in which application of radium had been followed by a fistula, but the dose given had been unduly high—11,000 mg.-hours. He held that coöperation between surgeon and radiologist was undoubtedly desirable, though the dose for carcinoma of the cervix was largely standardised. He did not think that a radiologist was the best person to apply the radium in this region, for even

an experienced operator sometimes found great difficulty in advanced cases with the insertion of the intra-uterine portion of the dose.—Prof. DOUGAL agreed with Dr. Cathie that the columnar-cell type of growth was proving to be less resistant to radium than had been thought in the past.

Naegele Pelvis

Dr. CLANCY reported the case of a 6-gravida who had had two stillbirths and three live children, all by instrumental deliveries. After the first delivery there had been paralysis of the left leg. She was admitted to hospital at the thirtieth week and on vaginal examination the membranes were found to have ruptured. The cervix and vaginal vault exhibited marked laceration indicating severe trauma at previous deliveries, and in view of this fact, it was decided to have a radiogram taken. This revealed a Naegele pelvis, of which there had been no indication by vaginal or other examination. The external appearance of the patient was also normal, and neither figure, gait, or carriage gave any suggestion of deformity. The following measurements were taken: interspinous, 8¼ in.; intercristal, 9½ in.; external conjugate, 6¼ in.; external obliques, 7 and 7½ in; posterior superior spine to symphysis on each side, 6¾ in.; spine of last lumbar vertebra to anterior superior spine, 6½ and 6¾ in. On examination of the patient's back a definite bony lump was found over the sacro-iliac joint on the affected side. The striking feature of these cases was the difficulty in diagnosis; for apart from the bony lump there was nothing to indicate the serious deformity. The customary measurements, as stated by Whitridge Williams, merely suggested a justo-minor pelvis. Dr. Clancy felt that there was much to be said for having a radiogram taken wherever there was a history of former dystocia.

The PRESIDENT spoke of the rarity of spontaneous delivery in the type of case, also the high mortality recorded—Litzmann, 22 deaths in 28 cases.—Dr. J. W. BRIDE referred to the temporary paralysis of the leg from which the patient had suffered after the first delivery. It was remarkable that nerve injury should be so rare even after difficult instrumentation.—Prof. PHILLIPS said that this case showed the desirability of all maternity hospitals being provided with an X ray apparatus.

Malignant Ovarian Tumours and Hysterectomy

Mr. C. H. WALSH showed a specimen of calcified fibroids associated with malignant pseudomucinous ovarian cyst and adenocarcinoma of the body of the uterus with hæmatometra.

The patient was a nullipara, aged 66, who had passed the menopause at 52, since when there had been no vaginal discharge. She had been perfectly well until the day before she was admitted to hospital for severe abdominal pain and vomiting. The pulse, respiration, and temperature were normal, but abdominal palpation revealed a hard mass in the right iliac fossa and a cystic tumour in the left side of the abdomen. The cervix felt normal and there was no vaginal discharge. In view of a possible diagnosis of carcinoma of the colon, a barium meal was given, and on radiography a calcified mass was seen in the right iliac fossa, which had the appearance of a calcified fibroid. The cystic mass was thought to be ovarian in origin, and a laparotomy was performed. There was no ascites. The uterus contained multiple fibroids, and the large calcified tumour seen in the radiogram was found to be a pedunculated fibroid, arising from the right side of the fundus uteri. The swelling on the left side was an ovarian cyst the size of a football. Total hysterectomy with bilateral salpingo-oöphorectomy was performed, and on incising the uterus after operation the surgeon was surprised to find it full of malignant growth and distended by about 6 oz. of blood-stained fluid. The tubes were also found to contain several malignant nodules, but in no instance had the growth reached the peritoneal surface. The ovarian tumour proved to be a papillary pseudomucinous cyst adenocarcinoma.

Prof. FLETCHER SHAW, in advocating removal of the uterus in all cases of malignant disease of the ovaries, recalled a case which supported the view that the growth in the uterus was secondary to the one in the ovaries. The patient, aged 39, had had double ovarian carcinomata—each the size of an orange and both free from adhesions. These were removed and the uterus retained; but after the operation the patient had amenorrhœa for 18 months, succeeded by irregular and increasing bleeding. About two years from the first operation, the irregular hæmorrhage having been present for about six months, panhysterectomy was performed and an advanced carcinoma was found in the interior of the uterus. If the growth had been primarily in the uterus it was hardly possible for it to have remained quiescent and for the woman to have 18 months' amenorrhœa after the removal of the ovaries. If, as seemed more likely, the uterine growth was secondary to the ovarian, it must have been in an early stage when the ovarian growths were removed and have progressed slowly, for hæmorrhage began only 18 months later. The first operation was in 1912 and the second in 1914, and the patient was alive now, 24 years after the first operation.

Dr. ELLIS thought it an advantage when operating on these cases to leave the uterus with a view to subsequent radium therapy. He quoted a recent paper by Schroeder giving results of treatment of a relatively large number of cases of proved malignant disease of the ovary treated by radiation. Schroeder divided his cases into three groups: (1) those in which he was able to remove all visible growth; (2) those in which most of the visible growth was removed; and (3) those in which only a portion of the growth was removed for biopsy. The five-year cures were 66 per cent. in Group 1 and 16 per cent. in Group 2. The latter was, however, sub-divided into two sub-groups. In first of these the uterus was not removed, so that it was used afterwards for intrapelvic application of radium in addition to the X ray treatment which all the patients received; the five-year survival-rate was 25 per cent. In the second, in which the uterus was not left and therefore radium was not applied, there were no five-year survivals. These figures indicated the advisability of supplementing operation with radium as well as X ray treatment, with the corollary that it was advisable to leave the uterus in position if all obvious growth was removed.

Mr. BURNS referred to a case in which a malignant ovarian tumour, the size of an orange, was removed and the patient had no symptoms for two years. After this time, uterine hæmorrhage occurred, and curettage showed a growth similar to that of the ovary. A dose of 2000 mg. hours of radium was given, and the patient had no further symptoms. Curettage 18 months later revealed merely fibrous tissue.

Mr. C. R. MACDONALD showed a specimen of acute torsion of a hydrosalpinx in pregnancy.

Dr. BRIDE reported two cases of unusual Ectopic Pregnancy.

REVIEWS AND NOTICES OF BOOKS

An Enquiry into Prognosis in the Neuroses

By T. A. Ross, M.D., F.R.C.P., sometime Medical Director, Cassel Hospital for Functional Nervous Disorders. London: Cambridge University Press. 1936. Pp. 194. 10*s.* 6*d.*

THIS book presents a serious attempt to find out what really happens to patients who have been treated for neuroses. The after-histories of nearly 1200 patients treated at the Cassel Hospital have been investigated, and, as the first cases were treated in 1921, many have now been followed up for over ten years. Forty-five per cent. of all the cases were well one year after discharge; 25 per cent. were improved; 19 per cent. had not benefited, while the remaining 11 per cent. were lost sight of. Of 850 patients, investigated five years after discharge, 502 were lost sight of, 290 were well, and 58 were improved. In 1934, only 134 of the 1186 patients were known to have relapsed. Dr. Ross states that many patients who reported themselves as improved in the earlier years after leaving hospital reported themselves later as being well. The average duration of stay in hospital increased gradually from 2·3 months in 1921 to 7·2 months in 1933. The best results were obtained in 1930 when the average duration of stay in hospital was 4·4 months. In this year 63 per cent. of the patients were well a year after discharge. Dr. Ross also reports his investigations into the prognosis as regards suicide and insanity. Patients known to have committed suicide numbered 7; and 23 patients were known to have become psychotics. The names of the "lost" patients were sent to the proper authority, and it was found that 10 had been certified and 16 had been received into mental hospitals as voluntary patients. From these figures Dr. Ross concludes that the prognosis with regard to becoming insane is good.

Dr. Ross's writings on the neuroses make a general appeal, for he uses simple language which all can understand. His methods of treatment are also simple and can easily be made use of by the practitioner. He is strongly critical of the Freudian school in their insistence on the need for prolonged analysis; whereas the Freudian analysts maintain that simple methods, such as Dr. Ross advocates, only cause temporary relief.

The good results here reported suggest that the methods Dr. Ross advises result in permanent cures in a high proportion of cases of neurosis; they should be studied with care.

Pathology of Internal Diseases

Second edition. By WILLIAM BOYD, M.D., M.R.C.P. Edin., Professor of Pathology in the University of Manitoba; Pathologist to the Winnipeg General Hospital, Canada. London: Henry Kimpton. 1935. Pp. 904. 45*s.*

To bring this book up to date has involved 25 additions to the text, though only four years have elapsed since the first issue, and the revision or complete rewriting of 13 sections. The descriptions of the anæmias, the diseases of the endocrine system, and pulmonary disease, among others, have had to be considerably altered. In spite of all this new material the volume has been increased by only 16 pages. This feat has been accomplished by the introduction of small type for some of the less common conditions and by shortening the chapter subheadings. We have here an attempt to bridge the gap which often exists between medicine and pathology, and the book should certainly help the student. The post-graduate student in particular will appreciate the references to recent work, which are now arranged under subject headings. A surprisingly large store of sound, well-balanced teaching is to be found in readable form in these pages.

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1. Foundations of Short Wave Therapy

By Dr. WOLFGANG HOLZER, Assistant in the Physiological Institute of the University of Vienna; and Dr. EUGEN WEISSENBERG, Medical Superintendent of the Short Wave Section of the University Clinic for Nervous and Mental Diseases in Vienna. Translated by JUSTINA WILSON, F.R.C.P. Edin., D.M.R.E. Cantab., and C. M. DOWSE, B.Sc. Lond., A.M.I.E.E. London: Hutchinson's Scientific and Technical Publications. 1935. Pp. 228. 12*s.* 6*d.*

2. Short Wave Therapy and General Electrotherapy

Illustrated. By HEINRICH F. WOLF, M.D., Consultant, Department of Physical Therapy, Mt. Sinai Hospital. New York: Modern Medical Press. 1935. Pp. 96. $2.50.

3. Néodiathermie à ondes courtes

By Dr. HENRY BORDIER and Dr. T. KOFMAN. Paris: J. B. Baillière et Fils. 1936. Pp. 139. Fr.24.

1. IN our review (THE LANCET, 1935, ii., 1125) of the German original we noted that here is to be found the best presentation of the technical aspect of ultra-short waves available in book form. The translator of this section has kept closely to the text—a highly desirable feature where physical facts and theories are detailed, even though it leads him to speak of the principles of electric circuits as "connexion theory." Accuracy has been maintained throughout and the rare misprints lead to no confusion.

The second section, devoted to therapy, is relatively short. The translator has expanded it by printing the descriptions of cases in the same type as the general text, whereas in the original smaller type was used for clinical examples. Some redundancies have crept in: an "adipose" woman is translated as a "stout corpulent" woman, but the fact that the translation is more free has made it also more readable. This therapeutic section would have been improved if Dr. Wilson had felt free to make some additions from her own experience of the method. Every practical worker in short-wave therapy should possess a copy of this book.

2. Dr. Wolf's book of drawings show types of electrodes and methods of application to the various diseased organs. Practical hints are interspersed, some of which are aimed, wisely, at preventing further damage to the patient. The author continues to maintain a preference for the diathermy machine for treating whole limbs, while the valve apparatus is appropriate for the treatment of selected cases of acute local inflammation.

3. It was in France that the therapeutic application of high-frequency currents originated, for it was d'Arsonval, in 1891, who made possible the use of diathermy. This little book gives an account of the theory and practice of diathermy and of ultra-short

waves which is well balanced, concise, and yet very readable. French machines of commercial type are included and some space is devoted to the biological effects of high-frequency currents.

A Synopsis of Physiology

Second edition. By A. RENDLE SHORT, M.D., F.R.C.S., Professor of Surgery, University of Bristol; and C. I. HAM, M.B., F.R.C.S. Edin., late Demonstrator in Physiology in the University of Bristol. Edited by C. L. G. PRATT, M.Sc., M.D., Lecturer in Physiology, St. Thomas's Hospital Medical School. Bristol: John Wright and Sons Ltd.; London: Simpkin Marshall Ltd. 1936. Pp. 312. 10*s*. 6*d*.

THIS book should be an excellent tonic for students who complain that physiology is "so indefinite." It is crammed with facts from beginning to end, and even the reasoning is tabular. It is not, of course, intended by the authors to be used alone as a text-book, although it contains more information than many text-books; it is a present to the student rather than a contribution to physiology. A dangerous present, perhaps, for it would be a peril to any student into whose hands it fell more than three months before his examination. The reason for this is that the authors have done their work surpassingly well, so that the reader of the book does not require to think at all: this has all been done for him. If he has not done his own thinking previously he will inevitably bend all his energies to memorisation and his knowledge will be sterile. Physiology is a subject to be understood rather than learnt; it is the medical student's training in how to reason about the human body, a pursuit which will occupy him for the rest of his active life. Nevertheless, examinations must be passed, and there could be no better form of revision than reading through this book. It is an exhaustive summary, accurate in the main details, and the subject is not "simplified." The sub-headings of the various sections provide what no larger book can—namely, a bird's-eye view of the subject matter and a gratifying illusion of finality. It is strongly to be recommended to those who feel their confidence ebbing before an examination. It should prove even more useful to teachers of physiology, not because they will learn very much from it, but because it will help them to present their lectures in an orderly fashion by suggesting a plan. Knowledge does not always go hand in hand with the power of exposition, and no teacher need be ashamed of making use of the painstaking analysis whose results are presented in this synopsis.

Lectures on Diseases of Children

Seventh edition. By ROBERT HUTCHISON, M.D., LL.D., F.R.C.P., Consulting Physician to the London Hospital and to the Hospital for Sick Children, Great Ormond-street. London: Edward Arnold and Co. 1936. Pp. 452. 21*s*.

THERE can be few text-books that have provided generations of medical students with more agreeable or serviceable reading than Dr. Hutchison's famous lectures. The seventh edition of a volume so well known requires little comment. The lecture dealing with chronic constipation in infancy and childhood, and part of that concerned with pink disease, have been rewritten, but apart from this there have been only minor alterations. The style conveys a peculiarly personal quality, and the matter is compact of sound judgment. The author specifically disclaims any intention of writing an exhaustive treatise on children's diseases, and the student must seek elsewhere for detailed descriptions of modern methods of diagnosis and treatment. For a wholesome reminder of the outstanding importance of clinical observation, the student can do no better than study Dr. Hutchison's lectures.

British Journal of Children's Diseases

(Vol. XXXIII., January–March.)—In an address entitled Farrago Pyretologica: a Medley on Fevers, recently delivered before the Nottingham Medico-Chirurgical Society, Dr. J. D. Rolleston stated that the study of fevers was so full of interest and importance that he had ventured to revive the term used in its Greek form by Richard Morton in 1692 for the title of his work on fevers. During the 35 years that Dr. Rolleston had been in fever practice he had witnessed a remarkable change in the incidence and severity of certain diseases, such as scarlet fever, small-pox, and enteric, as well as the appearance of new diseases such as encephalitis lethargica, encephalitis following measles and varicella, and summer typhus. New specific methods of diagnosis and treatment had been introduced, while others, especially the therapeutic use of alcohol, had been superseded or largely replaced. After discussing the Dick and Schultz-Charlton tests, and active and passive immunisation against scarlet fever as well as the antitoxin treatment, he maintained that four weeks' isolation was amply sufficient for an uncomplicated case, as had been recommended in a Ministry of Health report in 1927, though this recommendation did not seem to be generally known to the profession or the public. Chicken-pox was not always a trivial disease as it might give rise to serious and even fatal complications, and he had seen 6 deaths from it. He had never seen two attacks of measles in the same individual, nor a severe attack of rubella apart from one complicated by appendicitis and another by purpura hæmorrhagica. Like most observers with a long and intimate knowledge of the acute exanthemata, he had never encountered "the fourth disease," and declared that this term was more applicable to erythema infectiosum, sometimes known as "the fifth disease." It was still necessary to insist on making the diagnosis of diphtheria on clinical grounds, for he was constantly seeing cases in which valuable time had been lost, often with fatal results, because the practitioner did not send the child to hospital or inject antitoxin before he had received the report on the throat swab.—In a paper on the Mantoux Test in Children with Special Reference to Home Contacts, Dr. G. Gregory Kayne stresses the importance of some simple rules to guide the clinician in the use of the Mantoux test, and describes some points in the technique, routine procedure, and reading of the test. The significance of a positive and negative reaction in children is also described. Lastly, the usefulness of the test in the examination and handling of home contacts is considered.—Dr. Amir Chand, professor of medicine at the Amritsar medical school, contributes a paper on Chronic Jaundice in Three Brothers with Hypertrophic Cirrhosis of the Liver and Infantilism. The clinical features tallied in almost all respects with those of Hanot's cirrhosis. In the first case, that of a man aged 24, who died, signs and symptoms of portal cirrhosis appeared in addition to those of biliary cirrhosis a few months before death. No biopsy nor necropsy could be obtained. The other two brothers aged 16 and 12 were still alive.—In a paper entitled A Seventeenth Century Cure for Rickets, Dr. W. J. Rutherfurd comments on Sir Thomas Browne's statement in his Account of the Birds Found in Norfolk that about Norwich the livers of rooks were used for the cure of rickets.—The abstracts from current literature are devoted to treatment.

THE LANCET

LONDON: SATURDAY, MARCH 28, 1936

THE MIDWIVES BILL

AT the opening of the Parliamentary session last December the Speech from the Throne referred to the need of improving the maternity services and promised legislation whereby local authorities, in coöperation with voluntary associations, would provide an organised service of salaried midwives. The pledge is redeemed by the Midwives Bill which the Minister of Health has now presented. It embodies the main points recommended by the Joint Council on Midwifery—the principle that every maternity case should be nursed by a qualified midwife, the prohibition on unqualified persons nursing maternity cases for gain, the establishment by local authorities of a salaried service in all areas not already served by salaried midwives, and the grant of compensation or pension to all midwives who either are not accepted for salaried service or are found unfitted by reason of age or infirmity. County and county borough councils (and in some cases county district councils) are by statute the "local supervising authorities." It is to be their duty to secure within their areas a sufficiency of certified midwives to attend on the parturient woman in her own home and to act as maternity nurse for at least ten days after childbirth. The authorities are to arrange with welfare councils and voluntary associations for the whole-time service of the necessary personnel or else to employ midwives direct. They are to formulate proposals in consultation with local organisations of medical practitioners and of midwives and with welfare councils and voluntary associations, and the resultant scheme is to be submitted to the Minister within six months of the Bill passing into law. Before a local authority first engages midwives for employment, it must advertise the prospective appointments and the proposed salaries and conditions. As every practising midwife in the district must receive this information, there is reasonable hope that as many as possible of the salaried posts will be filled by local midwives previously in independent practice—a course which will simplify the transition and alleviate hardship. Each authority is to fix scales of fees for the services of midwives and maternity nurses, and it will be charged with the duty of recovering the fees from the patient or her husband, subject to a discretionary power to remit in view of the financial circumstances of the particular household. The additional cost of the scheme to the ratepayers will be borne in part by the Exchequer through the mysterious but efficient formula of the block grant adjusted to local needs and population. As the Minister has power to reduce the grant in case of inefficiency, the local supervising authority itself comes under supervision.

While the general standards of midwifery are being thus improved to the national advantage, it would be a pity if the national conscience had cause to feel uneasy over the fate of the midwives at whose expense the change is made. With the goodwill of the local authorities existing midwives can be absorbed in the new scheme, but there will remain a residue for whom the future holds anxiety. It is said that there are about 60,000 midwives on the roll and that only about a quarter of these are in actual practice; of this quarter roughly half are in salaried posts under voluntary nursing associations or otherwise, while the other half are practising independently. What with financial stringency, the fall in the birth-rate, and the increasing readiness of women to go into hospitals for their confinements, the midwife's calling is overcrowded, although as in other callings there is room for women of the best type. The Bill proposes to remedy this superfluity by the double process of buying out and weeding out. Under Clause 5 the midwife who surrenders her certificate within three years will be compensated with a sum equal to three times her average net annual emoluments; a midwife deemed incapable of efficient service by reason of age or infirmity of mind or body will be required to surrender her certificate (subject to a right of appeal to the Minister) and, on surrender, will be entitled to receive a sum equal to five times her average net annual emoluments. The number of women who, under these two processes, will be eliminated from practice is officially estimated at less than 3500. When due allowance has been made for a frugal reluctance to subsidise the so-called inefficients out of the public purse, the fact remains that most of these women paid for their own training and all have played their modest part in serving generations past, present, and future. The women who disappear from practice under Clause 5 can never be restored to the roll; they will commit a criminal offence if in future they act as midwives or maternity nurses. Section 3 of the Dentists Act was far more tender to the existing practitioner. Statistics, so far as available, indicate that a large majority of midwives have been earning less than £100 a year; one-third of them earn £50 or less; only one in seven earns £200 or more. When bad debts and professional expenses, food, and rent are deducted from these gross totals, the net annual sum (on which the compensation will be computed) is exiguous. Some 550 midwives in independent practice, it is believed, are over 60 years of age. They cannot have put by much against a rainy day. The Bill not ungenerously accepts the principle of compensation for this disappearing class of workers; its individual application will be scrutinised anxiously by those concerned.

As for the rest of the Bill, there is an excellent proposal that rules framed by the Central Midwives Board may require midwives to attend periodical courses of instruction arranged by the local authority of the district, and may also permit the Board to grant diplomas to midwives presenting

themselves for examination in the teaching of midwifery. The Minister of Health may prescribe the qualifications of persons appointed by a local authority to supervise the midwives practising within the area; nobody is to be appointed who does not possess the prescribed qualifications. Lastly there is a significant little clause which will give the Minister a power denied to him by the Court of Appeal last year. Under Section 14 of the Midwives Act of 1918 a midwife in cases of emergency can call to her assistance a medical practitioner. The Act says the local authority shall pay the medical practitioner a fee on a scale fixed by the Minister. In the Monmouthshire County Council case it appeared that not only did the Minister fix the scale of fees as Parliament said he might, but he also added conditions. The conditions involved the possibility that a doctor might do the work and yet not get the fee. The Court of Appeal found no power in the section for the Minister to do anything but fix a scale. Four doctors, advised by the two medical defence societies of which they were members, successfully claimed their fees in spite of the Minister's conditions. There was talk of the Minister taking the case to the House of Lords; he has found a simpler method of getting his way.

HYPERPYREXIA IN THE TREATMENT OF GONOCOCCAL INFECTIONS

DURING the past few years much experimental work has been done, chiefly in the United States, on the treatment of certain infections by physical methods which produce an increase in the general body temperature over a period of hours. Some have modified the old radiant heat bath, while others induce pyrexia by means of diathermy, short (wireless) waves, or inductothermy. It was evident from the views expressed at the Conference on Fever Therapy held at Dayton, Ohio, last year, that opinions differ greatly about the best type of apparatus, the most effective methods of applying the treatment, and the pathological conditions in which benefit may be expected. Nevertheless on some points there is a remarkable unanimity, and reports from many quarters show that the results in gonococcal arthritis may be excellent and even spectacular. Dr. NEYMANN,[1] of Chicago, speaking at the Royal Society of Medicine last April, said he could find no exception to the widespread belief that electropyrexia is the treatment of choice in such cases, and the same phrase is used by KENDELL, WEBB, and SIMPSON,[2] who report good results in 31 cases of gonococcal arthritis treated in the Kettering hypertherm—an air-conditioned cabinet in which the humidity can be controlled.

Among the forms of therapy now adopted is the combination of general hyperpyrexia with local application of the diathermy current to the pelvic focus of infection; and BIERMAN and LEVENSON[3] regard this mixture of old and new methods as a definite advance. Their practice is to place the patient in a water bath at 100–102° F. and gradually raise the temperature to 107–108°. By this means it is possible, within an hour, to bring the rectal temperature up to about 105° F., after which pyrexia of about 105·5° can be kept up without difficulty for five or six hours by transference to a bed covered with a hood made of insulating material and containing a battery of 60-watt electric light bulbs. Additional pelvic heating is obtained by the diathermy current, the active electrode (water-cooled if necessary) being inserted into rectum or vagina and the dispersive electrode being applied in four sections covering a wide area of skin. In this way, it is found, a temperature of 111° can be maintained in the pelvis for as long as 3½ hours. Of 16 patients treated (8 male and 8 female), 13, it is stated, had complete restoration of function, and in the other 3, who had already suffered irreversible joint changes, some improvement was recorded. The women required an average of 2·1 treatments the men 3·5, and the intervals between treatments varied from two to thirteen days. The best results were obtained in early acute cases.

The use of heat in the treatment of metastatic complications of gonorrhœa is by no means new, and has been practised in various forms for many years. Hence the conservative may argue with some reason that hyperpyrexia is merely a variation on an old theme; and there is no doubt that excellent results are commonly obtained by well-tried methods, without the additional discomforts and risks involved in exposure to high temperatures for a long period. Nevertheless there is at least one feature of these recent investigations which deserves close attention—namely, the frequent reference made to the rapidity with which gonococci disappear from the discharges and purulent secretions themselves subside when these more drastic methods are employed. STUHLER[4] says that urethral discharge sometimes ceases, and smears are often negative for the gonococcus, after the first session of fever therapy, and he makes the remarkable claim that fever therapy for gonococcal infections is one of the greatest advances made in the last fifty years—an advance "of even greater importance to the clinician than was the discovery of the gonococcus by Neisser in 1879." In their latest paper[5] STUHLER and his colleagues review the results of treating gonorrhœa with the Kettering hypertherm during a period of nearly two years, and are able to say that of 76 patients who completed the treatment 68 were cured and 7 were improved, while only 1 failed to respond. The condition was in 36 cases an uncomplicated urethritis; in the remaining 40 there was a complication in addition; but the infection never spread in consequence of treatment. Two-day intervals were allowed between sessions of fever therapy, and as a precautionary

[1] Neymann, C. A.: Proc. Roy. Soc. Med., 1935, xxix., 151; see THE LANCET, 1935, i., 1102.
[2] Kendell, H. W., Webb, W. W., and Simpson, W. M.: Amer. Jour. Surg., 1935, xxix., 428.
[3] Bierman, W., and Levenson, C.: Amer. Jour. Med. Sci., January, 1936, p. 55.
[4] Stuhler, L. G.: Proc. Staff Meet. Mayo Clinic, 1935, x., 207.
[5] Desjardins, A. U., Stuhler, L. G., and Popp, W. C.: Jour. Amer. Med. Assoc., Feb. 29th, 1936, p. 690.

measure the treatment was always twice repeated after the signs and symptoms had disappeared; but most of the patients required only five or six sessions for cure. Better results were obtained as technique improved and these latest data in no way modify the optimism of earlier reports. If the claims put forward are justified—if means can really be found to reduce the weeks of mental stress, incapacity, and danger associated with the acute stages of gonorrhœa to days or even hours—then STUHLER'S words are certainly not an overstatement. Meanwhile in this country, so far as we know, there has not yet been any organised attempt at investigation on similar lines. An inquiry of this kind might well commend itself to public health authorities and those engaged in the systematic treatment of venereal diseases in clinics throughout the country.

ACADEMIC FREEDOM

WE print elsewhere (p. 739) Lord RUTHERFORD'S account of the work done by the Academic Assistance Council and of how it is proposed to carry on such part of the work as seems likely to require to be done in the future.

The Academic Assistance Council consists of 36 men and women eminent in various fields of scholarship and science; 13 of them are fellows of the Royal Society (including the president and two past-presidents) and 6 are either members of the medical profession or research workers in the medical sciences. "Intellectuals" and "professors" are sometimes accused of showing little ability in practical organisation; the work done by this body of "intellectuals" is an instructive commentary upon that popular opinion. From the beginning they had to deal with a problem which stirred popular feeling, exciting generous and selfish emotions in about equal proportions. On the one hand a tale of cruelty and oppression in foreign countries never fails to arouse sympathy. Less literary ability than was at the command of the Council would have produced a story fit to be adorned with headlines in the daily and evening press. It would have been a convenient safety valve for emotion, and, by wounding foreign susceptibilities, have postponed for ever any hope of reconciliation. On the other hand, the pecuniary rewards of learning and science in this country are not so abundant that the provision of opportunities for foreigners, who may be competitors for posts to which home-bred scholars looked forward, can be examined with complete impartiality. The dangers could have been avoided by the issue of completely colourless statements and emphasis upon the temporary character of much help given. The result would have been general indifference. The Council have had the wisdom and skill to avoid wholly the dangers without lapsing into a policy of mere hand-to-mouth charity. They have, without using language which could give reasonable offence to foreign governments or nationals, made plain the tragic circumstances of many who have deserved well of all who value intellectual liberty, and in their practical policy have given no grounds for local jealousy. An organisation has now been created fit to cope with the difficulties of the future and all will wish success to the proposal to put it upon a permanent basis.

All will hope, not least the members of the Council, that the time will come when the interest of the Society for the Protection of Science and Learning will be purely historical. Unfortunately the state of the world holds little prospect that the hope will be realised in the near future, and we trust that the new society will be generously supported by members of a learned profession which in its long history has too often suffered from the want of intellectual freedom.

ANNOTATIONS

MEASLES IN LONDON

ATTENTION was drawn on p. 692 of our last issue to the rapid increase in the number of cases of measles under treatment in the fever hospitals of the London County Council. The total number of patients in the measles wards is now over 3000. During the week ended March 24th 964 fresh cases of measles were admitted, and on one day (March 23rd) as many as 178 cases. The number under treatment at one time has not yet reached the maximum of the last epidemic when, on a day in April, 1934, 3696 measles patients were being cared for in these hospitals. In that epidemic, notable prevalence, as reflected in the occupied beds, commenced a fortnight earlier than upon this occasion, and although the epidemic must be approaching its climax, it is not possible to say that this has in fact been reached. The later start is all to the good, because it implies more favourable seasonal conditions during the phase of maximum prevalence; we learn that the incidence of broncho-pneumonia is not notably high, and that in this respect the epidemic compares well with the last. In 1933–34, concurrently with measles, diphtheria and scarlet fever were also very prevalent. There is at the present time no undue prevalence of these other common infections of childhood, and this is fortunate because, although the London County Council possess ample reserves of accommodation, there is a shortage of nursing and domestic personnel. Now that the need for temporary additional assistance has been made known in the press it will doubtless be met, although this authority is not alone in experiencing difficulty in obtaining nursing and domestic staff at the present time.

VITAMIN B_1 BY INJECTION IN TREATMENT OF NERVOUS DISEASES

AT a meeting of the Edinburgh Pathological Club last week Dr. W. Ritchie Russell read a paper[1] on the parenteral administration of vitamin B_1 in polyneuritis and other conditions. He obtained supplies of the vitamin from Messrs. Hoffmann-La Roche for clinical trial and used them in the treatment of diseases in which there was evidence of degeneration of the peripheral nerves. Cases of chronic progressive polyneuritis, alcoholic neuritis, and subacute combined degeneration of the cord were treated. All of them showed peripheral sensory loss of the glove

[1] To appear in May issue of the *Edinburgh Medical Journal*.

and stocking type, and Dr. Russell found that injection was followed within a day or two by shrinkage of the area of sensory loss. As the treatment was continued the anæsthesia and weakness in the limbs quickly diminished, and he believes that the improvement occurring rapidly in the nerves that were least degenerated is similar to the rapid recovery obtained by injecting the vitamin in animals suffering from B_1-deficiency. The longer nerves, which are severely degenerated, can of course recover only gradually. In some of the cases reported the patients had been taking vitamin B_1 by the mouth previously without any good effect, and the striking improvement after parenteral administration suggests that in such persons the vitamin is destroyed in the alimentary canal or is for some other reason not absorbed. The two advantages of injection to which Dr. Russell drew attention are (1) that it overcomes this possible "conditioned deficiency" due to failure in absorption, and (2) that it produces a quick response which is of value in diagnosis because it demonstrates that the patient is really suffering from a lack of the vitamin. Anorexia of long standing sometimes responded to a single dose.

INCAPACITY AND LIGHT WORK

THE insurance doctor is constantly called on to decide when a patient who has been in receipt of sickness or disablement benefit should no longer be certified as incapable of work. It would of course be impracticable to place upon the expression "incapable of work" so narrow a construction as total inability to carry out any of the physical or mental processes that constitute work, and in the handbook for the guidance of approved societies the advice is given that an insured person should properly be regarded as satisfying the statutory condition of being "incapable of work" if he is in such a condition, through some specific disease or bodily or mental disablement, that an attempt to work would be seriously prejudicial to his health. Further, although a person who is admittedly unable for the time being to follow his ordinary occupation may not necessarily be rendered unfit for some other and less exacting form of work, he may properly be regarded as incapable of work if it appears probable that he will soon be able to resume his former work, and it would therefore be unreasonable to expect him to undertake any other form of work in the meantime. But if it becomes clear in the course of the illness that there is no reasonable prospect of his becoming fit for his ordinary occupation the society are advised to consider whether the man's physical and mental condition is such that he is capable of performing other remunerative work of such a character as a man of his training, education, and experience could reasonably be expected to undertake. If the man (or woman) can be so regarded benefit should not continue to be paid after the insured person has had a reasonable time in which to adapt himself for a new form of employment.

Here enters the problem of "light work." It is one thing to say the insured person is fit for light work, but it is another thing for him to be able to obtain it. And, as Dr. J. P. Steel points out in relation to compensation cases, the difficulty is greater when the labour market is overstocked. At the last panel conference the Insurance Acts Committee put forward a recommendation that where an insured person is considered by his doctor to be fit for work, but not fit for his former occupation, the doctor might give an indication to this effect in his next certificate by the insertion in the remarks column of the words "(?) alternative employment." It had previously been proposed that when a patient was likely to be fit for some employment but was not likely ever, or for a long period, to resume his previous occupation, this fact might be indicated to the society in the form of an inquiry as to what action the society proposed to take in the particular case. This was regarded as open to objection as a possible infringement of professional secrecy. One difficulty in dealing with this type of case is that, when an insured person is permanently incapacitated for his ordinary work although no longer completely disabled, certain approved societies are apt to stop payment of benefit the moment the practitioner indicates his fitness for some kind of work. Other societies willing enough to deal with cases more liberally are met with the difficulty that in many areas there may be no alternative employment. An entry on a certificate, as was remarked at the conference, does not turn a blacksmith into a waiter. Dr. Steel is dealing specially with persons in the transitionary stages between incapacity following an accident and complete recovery therefrom. But the provision of light work, or of alternative employment, is common to both problems.

REPEATED ABORTION

DURING the luteal phase of the ovarian cycle the uterine muscle loses its spontaneous contractility and becomes relatively insensitive to posterior pituitary extracts. From this it is deduced that the corpus luteum maintains the uterine quiescence that is essential for retention of the developing embryo during early pregnancy. Assuming that habitual and threatened abortion sometimes results from undue uterine motility various workers[1] have advocated the prophylactic or therapeutic use of the corpus luteum hormone progestin in such cases. Finding that 1 rabbit unit of progestin can inhibit human uterine contractions on the seventh day post partum, Falls, Lackner, and Krohn [2] have been giving 1 rabbit unit twice daily in cases of threatened abortion until the symptoms subsided or the patient aborted, and a similar dose twice weekly from the time of diagnosis of pregnancy until the 32nd week in cases of habitual abortion. In a series of 41 cases they report only 7 failures, and these results are in general agreement with those of other workers, though there is elsewhere a tendency to give more frequent doses, in the habitual abortion group, during the early months of pregnancy when this type of abortion is commonest.

Despite the success claimed for this treatment, however, there may well be other factors—excluding such organic causes as syphilis—responsible for habitual abortion; and of these a deficiency of vitamin E is possibly the most important. Attention was first drawn to this stable, fat-soluble vitamin, present in high concentration in wheat-germ oil, by H. M. Evans and K. S. Bishop in 1922. Lack of this factor in the diet of male rats results in irreparable degeneration of the germinal epithelium of the testis; in pregnant females it leads to death of the fœtus; and though in non-pregnant females no degenerative changes have been found in the ovaries such animals are said to suffer from a transient, relative sterility. The interesting observation has also been made, by Hill and Burdet in 1932, that

[1] Wolfsohn, H.: Med. Welt., 1932, vi., 1616; Weinzierl, E.: Med. Klin., 1933, xxix., 563; Bishop, P. M. F., Cook, F., and Hampson, A. C.: THE LANCET, 1935, i., 139.
[2] Falls, F. H., Lackner, J. E., and Krohn, L.: Jour. Amer. Med. Assoc., Jan. 25th, 1936, p. 271.

the "royal jelly," the food juice of the future queen bee, is an abundant source of vitamin E, whereas the food of the sterile working bee is lacking in it. In 1929, investigating the diets of 206 sterile women, D. Macomber found them lacking in fat-soluble factors, and noted that when this deficiency was rectified 40 of the women became pregnant. In this country Dr. Evan Shute [3] has lately reported that the blood-sera of 70 per cent. of women aborting spontaneously displayed an abnormal resistance to proteolysis when exposed to tryptic solutions, and states that administration of vitamin E restored the normal proteolytic action of trypsin. In Canada Watson [4] has succeeded in bringing pregnancy to term in 75 per cent. of a series of 43 cases of threatened or habitual abortion by treatment with vitamin E. And others report similar experiences.

What part this factor plays in the maintenance of pregnancy has not yet been explained. Apparently it has no direct influence on ovarian activity, for there are no demonstrable degenerative changes in the ovaries in its absence, nor, as has been shown by Saphir,[5] will it produce cornification of the vagina if injected into castrated adult rats, or activation of the ovaries of infantile rats, or luteinisation of the ovaries of infantile rats previously sensitised with a follicle-stimulating extract. On the other hand, by injecting into œstrous rabbits extracts derived from vitamin E-deficient pregnant and non-pregnant rats, Rowlands and Singer [6] have shown that such extracts are less able to cause ovulation than pituitary extracts from normal rats. This suggests that vitamin E helps to maintain the normal activity of the corpus luteum during early pregnancy, not by direct action on the ovary, but by stimulating the gonadotropic function of the pituitary. If this is so, then the essential cause of habitual abortion is relative deficiency of the corpus luteum hormone—a deficiency which might be rectified either directly by injecting progestin or indirectly by giving vitamin E to encourage the pituitary to produce its luteinising factor, or by administering the luteinising hormone (prolan) of pregnancy urine.

SCURVY: OVERT AND LATENT

ADULT scurvy is so rarely seen in this country that there are few opportunities for its investigation. Such cases as occur are usually in food faddists or men living alone, and a typical example of the latter class is described by Drs. Archer and Graham in a paper we publish this week. The patient, an unemployed man, was living by himself on the tiny income of 17*s.* 6*d.* a week. He budgeted very carefully, but his total weekly expenditure on fruit, salads, and potatoes was only 4*d.* The potatoes were bought as chips and there was very little of them. Doubtless it was at this point that the "living alone" factor just tipped the scales; a larger amount of potatoes boiled at home would have saved the situation. The man was taken into St. Bartholomew's Hospital where a diagnosis of undoubted scurvy was made, and, in the course of his treatment, his misfortune was turned to good scientific account, the urinary excretion of ascorbic acid, before and after treatment, being studied by means of titration. The excretion before treatment was low (6–18 mg. daily), and addition of a daily dose of 187 mg. of ascorbic acid as orange juice led to little rise in it during the next 10 days. In other words the patient's tissues were not yet "saturated." After 17 days the dose was increased to 281 mg. and the result was an immediate rise in excretion to 42 mg.; by the 21st it had exceeded 100 mg. Study of a second case confirmed these results and a comparison was also made with the values given by a healthy man eating plenty of fruit. The daily urinary excretion in the latter case was 40–50 mg., and administration of 400 mg. of ascorbic acid daily for 10 days produced an immediate rise in excretion to 262 mg. on the first day and to over 400 mg. on the second day—an excretion of over 90 per cent. In agreement with the results of this work is a study from the Vanderbilt University medical school in America.[1] Here the subjects of investigation were not suffering from scurvy, but were consuming diets of very varying vitamin-C content. Some showed urinary excretion of under 10 mg. daily and a number of under 20, while very few rose above 30. The percentage retention after a single large dose of about 600 mg. of ascorbic acid tended to vary inversely with the size of the previously observed urinary excretion, the majority retaining 80 to 90 per cent. The only three subjects who retained less than 60 per cent. and who could be regarded as "saturated" were the only three showing a previous daily excretion of over 40 mg. The contrast is very conspicuous, as illustrated by both these studies, and it is increasingly clear that knowledge of the daily urinary excretion of ascorbic acid, and of the response to a large test dose of the vitamin, is a valuable diagnostic datum in latent or overt scurvy.

MODERN VIEWS ON EVOLUTION

THERE are many grades of opinion among biologists on the question of the mechanism of evolution, ranging from that of the neo-Lamarckians whose faith in the inheritance of acquired characters remains unshaken in spite of the paucity of evidence in its favour, to that of the gene mutationists whose theory has been erected upon an imposing mass of experimental evidence from genetics and cytology. Prof. Walker attempts,[2] in a recent publication, to reconcile conflicting points of view and facts which have hitherto been difficult to fit into a single theory. After disposing of the Lamarckian theories he ranges himself on the side of the selectionists, but denies the wide application of the chromosome theory of heredity. The most important characters of organisms, he says, are not inherited alternatively and are therefore not borne on the chromosomes, which are responsible for the transmission of relatively insignificant features. The major characteristics must be represented in some other part of the cell. The original suggestion is made that changes may originate in the chromosomes and later be impressed upon the rest of the cell. "Mendelian" characters are thus the recently acquired ones, while older and more basic characters are those which show "blending inheritance." Prof. Walker is justifiably sceptical of the Mendelian explanation of blending inheritance by the postulation of a large number of factors, a procedure which could explain almost anything. He is not, however, always just to the opposing view, and has ignored recent work which tends to show that many "Mendelian" characters are only outward signs of more important physio-

[1] Youmans, J. B., Corlette, M. B., Akeroyd, J. H., and Frank, H.: Amer. Jour. Med. Sci., March, 1936, p. 319.

[2] Evolution and Heredity. By Charles Edward Walker, D.Sc., M.R.C.S., Associate Professor of Cytology in the University of Liverpool. London: A. and C. Black Ltd. 1936. Pp. 222. 6*s.*

[3] Shute, E.: Jour. Obst. and Gyn. Brit. Emp., February, 1936, p. 74.

[4] Watson, E. M.: Canad. Med. Assoc. Jour., February, 1936, p. 134.

[5] Saphir, W.: Endocrinol., 1936, xx., 107.

[6] Rowlands, I. W., and Singer, E.: Jour. of Physiol., 1936, lxxxvi., 323.

logical characteristics, that the action of a gene is by no means fixed but depends upon the nature of the rest of the "gene complex," and that the chromosome theory of sex determination can be reconciled (at least theoretically) with the occurrence of the sex reversal. Many of the difficulties in accepting the complete chromosome theory, particularly those derived from a study of the protozoa, are well stated in this monograph, which is, however, too discursive for easy reading.

Dr. Hurst makes a contribution of a different kind. His book[3] is written in a lucid style and is so well planned that no one can fail to follow the arguments. The gene and mutation theories are clearly presented with no mention of any facts which might lead to confusion or to doubt that the theories as at present conceived may apply to all aspects of heredity and evolution. The origin of life in "progenes" is discussed in a manner which almost gives the impression that the matter has already been proved whatever may be meant by the term "progene." That naturally occurring short-wave radiations give rise to mutations which are the basis of evolutionary change is suggested and later assumed in spite of much contrary evidence. This is a readable and entertaining book, but which might, however, mislead the ordinary reader by giving an impression that the basis of the mechanism of evolution is thoroughly understood, and that it is now only a matter of working out the details. Few biologists would claim such finality for the theories of to-day.

THE PERCENTAGE OF OXYGEN IN OXYGEN TENTS

IN order to raise the oxygen-content of the atmosphere of an oxygen tent it is customary to begin by turning on the by-pass so as to obtain a brisk flow from the cylinder. When the required percentage has been reached the stream is adjusted so that it covers the relatively small amount used by the patient, and also the loss by leakage—which varies according to the airtightness of the tent. In many oxygen tents it is intended that the leak shall be sufficient to give egress to the carbon dioxide produced by the patient, making the use of soda-lime unnecessary. It is not practicable to blow away all the carbon dioxide in this way, for the loss of oxygen would be excessive; but an accumulation up to 2 per cent. or more is often considered permissible. On the other hand, in the type of tent where soda-lime is used the absorption of carbon dioxide is so efficient, and the tent can be made so airtight, that the oxygen flow can be cut down to 3 or 2 or even 1½ litres per minute. Recently A. L. Barach[4] has pointed to a possible disadvantage in the more open type of tent. He was called to see a child 9 years old in one of these tents suffering from broncho-pneumonia. The child was as "blue as a serge coat"; the pulse-rate was 160 and the temperature 108° F. The oxygen concentration in the tent was 28 per cent. (the oxygen in the atmosphere being 21 per cent.). Using a second cylinder Barach increased the oxygen flow by 32 litres a minute until the percentage rose to 60. The child's colour immediately began to improve, the pulse-rate came down to 120, and the temperature gradually fell to 101°. The child, whose eyes had previously rolled upwards, became conscious, and the breathing which had appeared terminal and very shallow took on a deeper and more vigorous character. In another hospital disappointment with oxygen therapy could be traced to the practice of giving 7 litres of oxygen a minute in a tent that "leaked like a sieve." In three other instances in New York Barach found that a flow of 30 to 40 litres was required to keep the concentration between 50 and 60 per cent. Somewhat similar observations in this country were described by Dr. E. P. Poulton in last week's *British Medical Journal*. In a tent of the more open type he found that the maximum value was 35 per cent., and sometimes a value as low as 25 per cent. was obtained.

The problem remains whether the advantage of doing away with soda-lime is counterbalanced by the extra consumption of oxygen necessary or whether the certainty of being able to reach an adequate percentage of oxygen with quite a small flow is worth the expense of the soda-lime used. Barach inclines towards a large flow of oxygen (6 to 8 litres) and an increased leak, while Poulton has emphasised the value of an airtight tent with a small flow of oxygen and the addition of soda-lime. But both concur in the importance of analysing the atmosphere of the tent; and the practice of certain manufacturers in saying that it is unnecessary to test the oxygen concentration if a certain flow (between 12 and 7 litres) is run in, is to be condemned.

TRIGEMINAL TIC

Dr. Wilfred Harris's experience[1] of the treatment of trigeminal neuralgia by alcoholic injection must be unique. He has notes of 1140 cases which he has treated in this way and has recently examined this material for the purpose of summarising some of the lessons to be learnt from it. He suggests that, in order to avoid confusion with other forms of facial neuralgia, the terms trigeminal tic and glosso-pharyngeal tic should be used for the paroxysmal form of neuralgia which affects these nerves. Analysis of the cases brings out the greater liability of the female sex to trigeminal tic, which Dr. Harris believes to be due to an irritative process at the periphery of the nerve concerned. Of the total number of cases, 748 occurred in women and 392 in men. In 61 per cent. the right side of the face was involved and in 39 per cent. the left side. Of the 60 bilateral cases (over 5 per cent. of the total) 80 per cent. were in women. The author's technique for the injection of the Gasserian ganglion is described in detail, and the importance of proceeding step by step, patiently waiting for the manifestation of the signs appropriate to each stage of the operation before going on to the next stage, is emphasised. Those who have watched Dr. Harris at work will remember that he prefers local anæsthesia in cases where the intelligent coöperation of the patient can be anticipated. Any motor paralysis which results from the injection generally passes off gradually after a period of three months, and even in bilateral cases there is little loss of the power of mastication. Dr. Harris's method of injecting the inner two-thirds of the ganglion where it is unnecessary to destroy sensation over the distribution of the third division of the nerve is well worth noting; it must require considerable practice before any operator can expect to achieve the same measure of success with this delicate manœuvre as its originator can claim. Since 1926, when Dr. Harris drew attention to the occurrence of trigeminal tic as a complication

[3] Heredity and the Ascent of Man. By C. C. Hurst, Ph.D., Sc.D., sometime Fellow Commoner and Research Student of Trinity College, Cambridge. London: Cambridge University Press. 1935. Pp. 138. 3s. 6d.

[4] Jour. Amer. Med. Assoc., Feb. 29th, 1936, p. 725.

[1] Ann. of Surg., 1936, ciii., 161.

of disseminated sclerosis, he has several times observed the occurrence of trigeminal tic and disseminated sclerosis in members of the same family. In some families there had been a familial tendency to trigeminal tic; in one no less than nine members in three generations suffered from the disease.

PROLONGED ANALGESIA

THE relief of intractable pain is always a major medical problem, and when the pain is chronic it is one that tests the resources of the practitioner to the utmost. Sometimes, of course, the pain depends on a local cause which is accessible to local remedies; for instance, the pain following many rectal operations is often of this description. Here much can be done by strict cleanliness at the actual operation to diminish the suffering which used to be regarded as an inevitable sequel to any operation on the rectum. Nevertheless, operations in this region are more often than not followed by pain, more or less severe, even to-day. Frequently opiates are employed to control it, but since the symptom is of purely local origin it ought if possible to be controlled by local measures. Some rectal operations are satisfactorily performed under local anæsthetics, but the analgesic action of these is usually brief, and they cannot readily be applied again to the wound. A local analgesic with prolonged action would therefore be a great gain, but it is no easy task to find one which is both effective and innocuous. Quinine and urea chloride, for example, though excellent for its lasting effect, is liable to produce sloughing. N. J. Kilburne [1] describes the investigation, experimental as well as clinical, of a number of analgesics, with the object of finding one which could be used locally and could produce long-lasting effects. This he claims to have found in Eucupin, a modification of quinine hydrochloride with urethane. This is also bactericidal, and is said both to relieve pain and keep down infection. It is applied by soaking cotton in a 0·75 per cent. solution and pressing it into the wound. Kilburne's experiments with oily substances have not led him to regard these with favour for prolonged action, but we believe that trials now in progress at a London hospital are giving more encouraging results.

THE GOAL OF EUGENICS

AN attempt to portray in simple but accurate language the main principles of eugenics and their application to social problems has been made by Mr. Huntington in conjunction with the directors of the American Eugenics Society.[2] It is an outgrowth of an original report of a committee of the American Eugenics Society, prepared under the direction of Prof. Irving Fisher, and it is intended for intelligent people who make no claim to scientific knowledge concerning eugenics. In a preface the author informs us that he has done his best to express the general sentiment of the group of directors as a whole, but modestly adds that he has doubtless given too much weight to his own views. It is questionable whether the book will be found of much service to medical readers. It is prepared in the form of a catechism containing 371 questions and answers. Many of these are worded in such a way as to apply primarily to American conditions. Much the most difficult task which to-day confronts writers on eugenics is to give a satisfactory account of the aims and methods of "positive" eugenics; of how, in other words, to encourage the fertility of persons regarded as biologically well-endowed. The fact having been noted that rural communities have a higher fertility than urban, American eugenists advocate a back-to-the-land movement which they hope may be organised on a sufficient scale to affect the country's birth-rate. Such proposals are hardly applicable to this country. Like most eugenists, Mr. Huntington is concerned lest schemes for promoting fertility should act dysgenically by encouraging the reproduction of biologically inferior strains at the expense of biologically superior. In this connexion the reader will frequently encounter throughout the book phrases such as a "well-matured plan of eugenic selection" or "an adequate basis of selection" which will enable us to distinguish eugenically superior from inferior stocks. A 372nd question which many medical readers would like to ask the author is whether anyone has yet devised a workable and scientifically valid scheme of eugenic selection applicable to the average citizen; and if not, why the American Eugenics Society does not try to do so. Most people admit that a small proportion of grossly unfit persons can be distinguished, of whom it can be definitely said that they should not become parents. But in view of the limitless variety of physical, moral, and mental qualities which combine to constitute good and bad citizenship, it is far from obvious how we are to recognise the person who embodies these various qualities in such a way as to enable us to regard him as representing a eugenically average type. If an average type cannot be recognised, how are we to devise well-matured plans, and establish adequate bases, of eugenic selection designed to encourage the fertility of persons above that average and to discourage that of persons below it?

[1] Surg., Gyn., and Obst., March, 1936, p. 590.

[2] To-morrow's Children: The Goal of Eugenics. By Ellsworth Huntington. New York: John Wiley and Sons, Inc.; London: Chapman and Hall Ltd. 1936. Pp. 139. 6s.

ARTHUR SHADWELL

THE death of Dr. Arthur Shadwell which occurred on Saturday last at a nursing-home at Richmond has removed from among us a distinguished authority on many social questions and an effective writer on social matters of the first importance. The son of a Yorkshire clergyman, he was educated at Uppingham where he acquired under Paul David a knowledge of and taste for music which never left him. He went to Oxford as an exhibitioner at Keble, was a student at St. Bartholomew's Hospital, and having graduated in medicine practised for a time in Brighton, where he became assistant physician to the Sussex County Hospital. He proceeded to the Oxford M.D. and was elected F.R.C.P., but he soon retired from the active practice of his profession to use his academic and practical training to fine advantage in dealing with such great subjects as the temperance question, epidemiology, urban water-supplies—especially the London water-supply—the arguments for and against socialism, and the application of economics to political activities. As a special correspondent of the *Times* he made investigations into epidemics of cholera in Germany and Russia, and in 1909 he published under the title of Industrial Efficiency a large volume in which he recorded the results of his personal study of economic conditions in this country, on the Continent, and in the United States, a work which gained him the degree of LL.D. Birmingham. Ten years ago he wrote an excellent handbook entitled the Socialist Movement, in which he was able to display his first-hand familiarity with much of what he discussed, his singularly fair attitude of mind, and his wide acquaintance with social history. The FitzPatrick lectures delivered before the Royal College of

Physicians of London in 1925 and 1926 proved his classical learning. He was opposed to the State management of industry as advanced by the advocates of socialism, but he was able to give the authority for his arguments, either derived from his own work or that of others, and his appeals for reforms gained added force from his reasonableness. Through his long and distinguished connexion with the *Times* and the historic and literary value of his books, Shadwell became an authority in many provinces of political economy. If he wrote more as a philosopher than a doctor his medical training was always at the back of his arguments.

THE POSITION OF CHIROPODY

THE prosperity of the Incorporated Society of Chiropodists was emphasised at the recent annual dinner of the society noticed in another column; and from the mouths of the speakers it could be gathered how wise the attitude of the medical profession had been in regarding the therapeutics of the foot as a definite branch of ancillary medicine which ought to be in the hands of an organised body of workers. When the movement for the recognition of chiropody in this manner first took shape many members of the medical profession viewed it with but qualified approval. But with the spread of scientific knowledge a too exclusive attitude has long been found illogical. As medicine in the development of its own work has had to call for aid from other sciences, the necessity for proper coöperation in medical work with workers outside the professional roll became clear and the increasing importance attributed in the medical curriculum to the preliminary subjects may be mentioned in obvious proof. But the spirit thus shown in the scheme of general medical education has not stopped there but has extended to various fields of practice, and the Society of Chiropodists forms a good example of this. When the movement for professional collaboration with the society originated there were found in opposition those who held that the absence of full medical training made professional union a dangerous course, but those who desired to see professional coöperation occur were able to counter by saying that as a matter of fact the fully qualified medical man had not, save in the instance of a few specialists, cultivated that field of therapeutics. The treatment of the foot, apart from definite surgical treatment, had been left to the charge of chiropodists and the advocates of proper collaboration held that it was a duty of the medical profession to assist the chiropodists to become an organised and standardised body, with whom regular medical consultation could take place. The liberal view was taken with the approval of the Royal Colleges and the British Medical Association, and the effect has been successful. The society, in association with its Foot Hospital, is doing valuable work and extending its activities throughout the country.

A PANORAMA OF CURRENT THERAPEUTICS

THIS week the first 35 articles of the series on treatment in general practice now running in the *British Medical Journal* have been issued together in the form of an attractive book.[1] The contributions include those on diseases of the respiratory tract (14), acute specific fevers (6), and cardiovascular diseases (15); the other group of articles published in 1935—referring to the nervous system—and those on the treatment of digestive disorders appearing this year week by week, with their successors, will be collected in subsequent volumes. The whole will form, as the editor of the *British Medical Journal* says in his preface, a panorama of current therapeutics, a composite picture of the art and science of medicine to-day none the less valuable because parts of it will need touching up and perhaps even repainting to-morrow. All the contributors are teachers of clinical medicine in various schools, and the practical simplicity of the methods of treatment outlined refutes once again the calumny that the outlook of the modern specialist is too academic or his armamentarium too dependent on diagnostic aids to make his advice of much use outside the great cities. At the same time some of the credit for the practical, even occasionally dogmatic, nature of the teaching is due to editorial vigilance. The volume is slender enough to be pleasant to handle and the type is easy to read.

[1] Treatment in General Practice. Articles from the *British Medical Journal*. London: H. K. Lewis and Co., Ltd. 1936. Pp. 250. 8s. 6d.

WE regret to learn the sudden death at Farncombe on Sunday last of Sir James Smith Whitaker, late senior medical officer to the Ministry of Health.

Dr. A. Rupert Hallam, lecturer on dermatology in the University of Sheffield, has been appointed by the National Radium Trust to be a member of the Radium Commission, in succession to Sir Arthur Hall.

THE Lister memorial lecture will be delivered by Sir Robert Muir, F.R.S., at the Royal College of Surgeons of England on Tuesday, April 7th, at 5 o'clock. He will speak on malignancy with illustrations from the pathology of the mammal.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

Surg. Capt. E. MacEwan to *Barham* (on transfer of flag).

Surg. Lt.-Comdr. J. H. Nicolson to *Woolwich*.

Surg. Lt.-Comdr. (D.) L. R. Armstrong to *Pembroke* for R.N.B.

Surg. Lts. J. G. Slimon to *Challenger*; A. H. O'Malley to *Victory* for R.N.B.; and C. J. Mullen to *Pembroke* for R.N.B.

Surg. Lt. (D.) R. S. Jenkins to *Woolwich*.

The following have received appointments as Surg. Lts. for short service: B. M. Goldsworthy, St. Thomas's Hospital; T. J. Harkin, Royal College of Surgeons in Ireland; M. G. H. Heugh, London Hospital; L. Merrill, Guy's Hospital; E. H. Murchison, Glasgow University; and G. A. Maxwell Smith, Edinburgh University.

ROYAL NAVAL VOLUNTEER RESERVE

Surg. Lt. S. C. Suggitt to *Pembroke* for R.N.B.

ROYAL ARMY MEDICAL CORPS

Lt.-Cols. E. G. R. Lithgow and P. C. Field retire on ret. pay.

Majs. L. M. Routh and F. D. Annesley, M.C., to be Lt.-Cols.

TERRITORIAL ARMY

Supernumerary for service with O.T.C.—Lt. N. J. Logie (empld. Aberdeen Univ. Contgt. (Med. Unit), Sen. Div., O.T.C.) to be Capt.

ROYAL AIR FORCE

Group Capt. F. N. B. Smartt to Headquarters, R.A.F., Iraq, Hinaidi.

Flying Offrs. A. S. Amsden to No. 3 Armament Training Camp, Sutton Bridge, and H. E. Bellringer to No. 1 Armament Training Camp, Catfoss.

Dental Branch.—Flight Lt. W. D. Guyler to R.A.F. Record Office, Ruislip. Flying Offrs. I. St. C. Alderdice, O. F. Brown, J. H. G. Fensom, S. Hill, R. A. Pepper, and W. A. H. Smith to Medical Training Depôt, Halton, on appointment to non-permanent commissions.

PROGNOSIS

A Series of Signed Articles contributed by invitation

XCIV.—PROGNOSIS IN FRACTURES OF THE OS CALCIS

A MAN who fractures his os calcis wants to know first how long it will be before it has recovered, and next, whether there will be any permanent disability. The prognosis in both respects depends primarily on two essential factors: early and accurate diagnosis and efficient treatment. The diagnosis may be obvious, as with a man who lands on his feet from a height and has great pain and broadening of his heel, but in other cases it may be overlooked unless an X ray is taken. Indeed an X ray is essential not only for diagnosis but for determining the exact variety of fracture. An ordinary but true lateral view sufficiently good to show up at least some details of the internal architecture of the bone must be obtained as well as the special oblique posterior-superior view used for os calcis work. It is sometimes only in the latter view that the fracture is recognisable.

The notes and figures on prognosis set out below are based on the patients with fractures of the os calcis treated by the surgical staff at St. Bartholomew's Hospital in the last ten years. The records of 82 fractures of this bone occurring in 72 patients have been examined. The fracture was bilateral in 9 patients, one of whom had 3 fractures, the left os calcis being refractured some years later. All were males except 8; the average age was 42. In nearly all cases the injury was caused by the patient falling on his feet from a height, sometimes not great. Most fractures of the os calcis are due to compression of the bone as the patient lands on his heels, but the traction type (vide infra) occurs from the sudden pull of the tendo Achillis as the patient lands on his toes.

Type.	Cases.	Weeks of disability	Functional result.
1. Small fracture at anterior end of os calcis.	6	13	G.
2. Fracture of internal tuberosity.	4	10	G.
3. Fracture of upper part of posterior surface (traction type).	5	22	4 G., 1 F.
4. Fracture through the body of the bone, which does not involve the subastragaloid joint.	4	27	G.
5. Fracture involving the subastragaloid joint but with little or no displacement.	13	32	6 G., 6 F., 1 B.
6. Fracture involving the subastragaloid joint with definite displacement.	50	54	21 G., 18 F., 11 B.

G. = good; F. = fair; B. = bad.

It is probably well known that prognosis in fractures of the os calcis is bad; in fact for period of disablement and percentage of subsequent disability it ranks amongst the worst in the body. Although the os calcis is a small bone a number of different types of fracture are recognised, so many, in fact, as to make the nomenclature quite confusing. For the purpose of this article the use of as few subdivisions as possible was contemplated, but six has been found to be the minimal number which suffices (see Table).

As these cases were spread over a period of about ten years several methods of treatment were employed. In many of the earlier cases either no splintage was used or else a wooden back splint for two or three weeks was followed by massage and movements. In later cases the foot was fixed in plaster for from 4 to 6 weeks; and still later for 10 or 12 weeks. More recently in cases where there has been deformity of the bone and the subastragaloid joint has been involved an effort has been made to correct the displacement mechanically by pulling the posterior part of the bone downwards and backwards by a calliper fixed in the posterior part of the bone and attached to the well-known Böhler's traction apparatus; at the same time the bone has been compressed by a clamp, and the foot then immobilised in plaster. In four cases a subastragaloid arthrodesis had been performed.

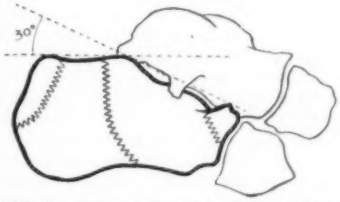


FIG. 1.—Types 1, 3, and 4 of fractures of the os calcis are here indicated. The normal "tuberosity-joint angle" formed between two lines, one from the highest point to the anterior angle and the other from the highest point to the upper part of the tuberosity (Böhler), is shown.

As has been indicated above, the patient is concerned with the chances of permanent deformity of the foot and with the economic results likely to ensue. The latter are of the utmost importance to the working man. To estimate the economic results of these fractures we must look not to X rays to see whether perfect anatomical alignment of the fragments has been obtained but to the patient himself to find out whether he has pain or disability, when he was able to return to his previous work, and whether indeed he has not been permanently disabled. Of the 82 cases in this series the present condition of 52 has been ascertained. The results have been analysed to reveal: (1) the length of time before work could be recommenced; (2) the functional result as regards the foot, which is arbitrarily divided into good (G.), fair (F.), and bad (B.). In the Table, the average period of disability before work could be recommenced is given in weeks for each type of fracture, followed by a note of the functional result. These results clearly show how closely the prognosis is linked up with the involvement of the subastragaloid joint. Where the joint was not involved good results were obtained, but of the patients in groups 5 and 6, less than half had good functional results and where there was also displacement of fragments a fifth had really bad

FIG. 2.—Type 6, fracture of os calcis showing compression with flattening as indicated by complete loss of "tuberosity-joint angle" so that all three points are in a straight line (cf. Fig. 1). The heel is very short.

results, some being unable to do any work, others being capable only of light work and all having persistent pain. An arthritis in the subastragaloid joint seems to be the cause of the pain; the patient describes it as being on either side of the heel and indicates points where the pain is worst an inch below the malleoli on each side. In the first few weeks after a fall on the heel a patient may complain of severe pain under the heel when he bears any weight on it, but this is relatively transient and the persistent pain is at the sides, more particularly the outer side.

The prognosis thus depends to a great extent on the type of fracture, but there are several other factors which must be taken into consideration. Amongst these are the method of treatment undertaken, the age and weight of the patient, whether he has a tendency to "rheumatism," and last but by no means least his mental outlook. The last is a major consideration in determining recovery after any fracture, and in those, like that of the os calcis cases, which involve a long convalescence it is a most important factor. The patient who has no question of compensation to brood over, has his own business to return to (and the sooner the better for him), who expects and is prepared to put up with some pain and inconvenience, and above all has an optimistic temperament, will recover far quicker than one without such advantages. Often one can judge from the light-hearted and stoical bearing of a patient when first seen that he will return to work as soon as he is allowed, while another in similar plight may drag on gloomily with pain for weeks, perhaps suffering not only from severe pain but also from "compensitis."

Recovery from any fracture is usually slower in the aged than the young, but age is a less important factor in os calcis fractures than is weight. It is hardly to be wondered at, if we consider the position of the os calcis, that the thin short subject makes a quicker recovery than does the heavy one.

Persons prone to "rheumatism" are more likely to get stiffness, pain, and arthritic changes following any injury than are others.

As to the effect of treatment in our series the final result bears no constant relation to the method of treatment employed. Some patients who had but three or four weeks on a back splint had better functional results and less pain than those immobilised for as many weeks in plaster, though mostly the advantage seems to be in the other direction. So many methods are advised for os calcis fractures that it is clear that none is entirely satisfactory; but the one point in treatment that *does* appear to influence the result favourably is a reconstruction of the shape of an os calcis which has been crushed. There are several methods of traction and compression in use for this purpose. But it remains true that two patients with similar fractures and similar treatment may end up with very different functional results.

A prognosis which may seem hopeless, when the os calcis is badly comminuted and deformed and the patient continues to have pain and disability, may be improved if an arthrodesis to fix the joint between the os calcis and astragalus, and perhaps cuboid as well, is performed. Two minor points deserve consideration. In some fractures of the os calcis the bone is not only compressed but is considerably shortened in its antero-posterior length. This diminishes the leverage on which the tendo Achillis works and so gives a certain feeling of weakness to the patient, but should not prevent him from doing his work. In certain very severe cases, where the os calcis is not only greatly comminuted and compressed but the surrounding bones are also injured, the functional result may be excellent; what really happens is that the os calcis and astragalus unite by bony union, and instead of a painful arthritis the patient has a painless solid joint. It is true that the foot may not be a very good shape, but this is a small price for a working man to pay for freedom from pain.

In conclusion it must be realised when the subastragaloid joint is involved by the fracture there will be little movement in this joint, although the patient may have a good result so far as freedom from pain and ability to work are concerned. The movements of flexion and extension at the ankle-joint are of course unaffected, but inversion and eversion of the foot are very limited and the patient finds difficulty in walking over rough ground or on the side of a hill.

SUMMARY

The prognosis of fractures of the os calcis is considered after a study of the results in a series of 82 cases. The results depend largely on whether the subastragaloid joint is involved. Prognosis also depends to some extent on the age, weight, and mental outlook of the patient and on the method of treatment employed. Those patients with fractures of the os calcis which do not involve the subastragaloid joint may expect to have a foot free from pain and to be able to return to work in three to six months. In those in whom the joint is involved the period of disability is likely to be on an average one year or longer; many of these will have permanent pain and few may expect a good result.

JOHN P. HOSFORD, M.S., F.R.C.S.,
Temporary Assistant Director, Surgical Professorial Unit, St. Bartholomew's Hospital, London.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED MARCH 14TH, 1936

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 0; scarlet fever, 2344; diphtheria, 1153; enteric fever, 13; acute pneumonia (primary or influenzal), 1383; puerperal fever, 37; puerperal pyrexia, 117; cerebro-spinal fever, 24; acute poliomyelitis, 5; encephalitis lethargica, 6; dysentery, 39; ophthalmia neonatorum, 101. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on March 20th was 5982, which included:—Scarlet fever, 664; diphtheria, 1050; measles, 2798; whooping-cough, 712; puerperal fever, 21 mothers (plus 13 babies); encephalitis lethargica, 283; poliomyelitis, 5. At St. Margaret's Hospital there were 21 babies (plus 13 mothers) with ophthalmia neonatorum.

Deaths.—In 121 great towns, including London, there was no death from small-pox, 2 (1) from enteric fever, 106 (39) from measles, 5 (1) from scarlet fever, 33 (5) from whooping-cough, 30 (5) from diphtheria, 57 (17) from diarrhœa and enteritis under two years, and 84 (9) from influenza. The figures in parentheses are those for London itself.

The mortality from measles is still rising, the figures for the last six weeks (working backwards) being 105, 84, 88, 78, 58, 34 for the country as a whole, and 58, 47, 38, 18, 14, 13 for Greater London. Leeds reported 7 deaths, Manchester, Salford, and Sheffield each 4, Liverpool, Wallasey, West Hartlepool each 3, no other great town more than 2. Deaths from influenza are on the wane; this week they are scattered over 46 great towns, Manchester and Birmingham each reporting 5, Sheffield and Leicester each 4. Birmingham reported 5 deaths from whooping-cough. Deaths from diphtheria were reported from 21 great towns, 3 from Manchester. West Hartlepool reported a death from enteric fever.

The number of stillbirths notified during the week was 266 (corresponding to a rate of 39 per 1000 total births), including 37 in London.

SPECIAL ARTICLES

COMPENSATION AND THE RETURN TO WORK

By JOHN P. STEEL, M.D. Edin.

MEDICAL SUPERINTENDENT, SMITHDOWN ROAD HOSPITAL, LIVERPOOL

WHEN compensation cases are referred for a definite opinion on the fitness of workmen for resumption of duty, a certain difficulty frequently arises in giving a report. Such cases divide themselves into three categories:

(*a*) Those who are fit and those unfit for work.
(*b*) Those where there is doubt about the extent of the *result* of the injury.
(*c*) Those suspected of endeavouring to obtain the greatest benefit for themselves as a result of the accident, irrespective of capacity for work.

With those classified under (*a*) there is no difficulty, and an honest certificate can immediately be given, but those under (*b*) cannot readily be divided from the cases which are considered in the dubious category of (*c*). It is not fair to the patient to make a sharp dividing line between the doubtful case and the case considered to be the equivalent of a malingerer, without a very close investigation, not only of the sociological and physical state, but also of the mental attitude of the patient.

When industry is at its height and there is little unemployment, these compensation cases are fairly simple, for the employer is only too pleased to have back a trusted man who is able to do some work for him, and he is willing and able to put profitable work (profitable to both the employer and the employee) into the way of a man who has had, and is returning from, an accident. But when the labour market is overstocked the large employer is able to call on any number of men to do the full work of the injured man at the same rate of wage. The economic factor governing a large business tells the employer to take on a man who can do a full day's work for a full day's pay, and he has to be content, therefore, to have the work done and to pay (or have paid by his insurance company) the man injured in his service at the reasonable rate of compensation laid down by the exigencies of the circumstances. In other words, when the labour market is glutted no employer (or at any rate very few) is able to offer what is commonly known as light work. This lack of "light work" is prone to weigh hardly on the honest employee who has suffered an accident, and has been paid compensation, on behalf of his employer. Let me quote two cases:

(1) A man working at the docks, who had a good reputation with his employers and with his fellow workmen as a man who did all he could for his wages, received a crack fracture of his right tibia when a sack fell from a crane at the side of a ship he was loading. The fracture was treated in the routine way and he had a considerable period off duty, receiving the full amount of compensation he was entitled to. When this had to be reviewed, he was referred for special examination and no gross damage was found.

(2) A man, whose duty it was to climb a ladder of 30 to 50 feet, one day fell, through no fault of his own, and received a somewhat severe jarring, with but little to show for his accident. He, in turn, having been injured at work, received the full amount of compensation.

Both of these cases were referred for examination, and in each the same difficulty arose. Whilst no crippling pathological condition could be found, yet there was a definite feeling that the patient was not able to take up his ordinary avocation. If a certificate had to be given on the present state of the workman, it would have had to be honestly stated that there was no apparent or ascertainable physical disablement, but, nevertheless, it was quite obvious that neither man was able to leave the hospital and start work—full work that is to say—the following morning. Both were more than anxious to get off the compensation period and to earn full wages, for both had dependants relying on them. In neither case, however, did it seem fair to run the risk of putting them at once to the ordinary hazard of their occupation, and a report had to be given saying that they were not fit for their ordinary duties, even though they wished to resume.

One difficulty in these cases is the complete lack of "light work." If a man has had an arm in plaster for seven weeks and has had repeated X rays showing the fracture of a bone and the gradual process of repair, the doctor is not able to take off the plaster and say "that arm is completely healed, there is now no fracture, and work can be started at once." He says "a certain amount of re-education of muscle and nerve is necessary" and recommends the use of the arm and the hand in increasing amount until normality is reached—in other words, a period of re-education. In more prosperous times such a workman who has been under compensation could be referred to light work which acted as re-education, but when the labour market is overstocked this is well-nigh impossible. The referee must then make up his mind whether those in category (*b*) and (*c*) are, in the industrial sense, completely recovered or only partially recovered. For the major injury he has to take into account not only the physical disability which has been recovered from, but the psychological trauma. It is not reasonable to expect a man who is a window cleaner by trade to go from hospital (when all his abrasions and bruises are healed and he has had a few days convalescence) back to the work which caused his disability. There is bound to be some psychological shock, and the fear (say) of a repetition of his fall is liable to make his work such that he may fall again.

In cases coming under category (*c*) the referee cannot say at once, or even after considerable thought, that a man is "swinging the lead," for of all dangerous diagnoses malingering is the one which takes the most substantiating. Where there is any possible doubt—and the case of the workman must be considered as of primary importance for his labour is all he has to sell—a full assessment of physical state, mental ability, and mental retardation or apprehension due to the accident must be made. In these circumstances it does not seem reasonable to ask a physician or a surgeon to give a final report on the desirability of terminating compensation on his own single responsibility.

Where there is the slightest doubt in my mind as to the desirability of re-education I have always endeavoured to have the man retained on compensation for a sufficient length of time for his reference to, and consideration by, a psychiatrist. I feel no loss of dignity in adopting this procedure, for not only is my opinion checked by a man who is a physician, but it is also considered by a practitioner who is able, and has the time, to assess the mental state and outlook of the injured man. I think that, before

the borderline case is put back to hard manual work at which he has suffered an accident and at which he has received psychological trauma, the opinion of an expert in psychological medicine should be obtained. In this way not only will justice be done to the injured man, but an additional safeguard will be offered to the employer against malingering.

The opinion of the physician or surgeon, reinforced by that of the psychiatrist, will carry weight in any court of law. If "light work" is not available it would pay the large insurance companies to have a re-education centre for such cases, for in the good type of workman this re-education is essential before the full day's work can be done for the full day's pay.

THE MATERNITY SERVICES

A Manifesto by the British Medical Association

UNDER the title An Urgent National Problem the British Medical Association has issued a reply to recent public statements about maternal mortality in Great Britain. "Maternal mortality," the Association has declared, "is a scientific and administrative problem which deserves careful and scientific study, but, in the experience of practising doctors the publicity which it is receiving to-day is tending to terrify child-bearing women and is, in itself, a cause of increased mortality." In the statement now issued the Association emphasises the fact that maternity is a natural physiological event, though it is one involving complex delicate and important processes. Departures from the normal occur in a small proportion of cases. The vast majority of cases are conducted with complete success in every respect, and, as demonstrated by comparable statistics, there is only one country in the world (Holland) in which safety appears to be *slightly* greater than in this country. In nearly every other country maternal mortality is considerably higher than it is here.

Maternity and its conduct are not concerned merely with attendance during the actual process of delivery but comprise supervision from the time that changes consequent upon conception manifest themselves until the return to normal some short time after childbirth. This whole period cannot be isolated from the rest of the health history and experience of the mother whether before, during, or after the period of actual pregnancy and parturition; it is an integral part of such medical help, advice, and treatment as the mother is accustomed to receive apart from maternity. All available evidence demonstrates that normal confinements, and those which show only minor departures from the normal, can be more safely conducted at home than in hospital.

During recent years a number of authorities have established a type of antenatal clinic in charge of whole-time medical officers; they have provided an increasing number of hospital beds for maternity cases without careful selection of admissions on medical grounds, thus cutting off the local medical practitioners from a considerable part of their maternity experience. This action has been accompanied by an appreciable increase in maternal mortality thereof. The Association points out that where a large number of maternity cases are aggregated in hospitals there is commonly an increased risk of puerperal infection; very disappointingly antenatal clinics, on their present lines, have not been and seem unlikely to be successful. These considerations are of the first importance when local authorities are considering communal action.

The medical requirements of a woman during the period of maternity are these:

1. Medical supervision *throughout* by the doctor of her choice, with specialist and hospital aids where needed.
2. Efficient nursing and advice by a skilled midwife or maternity nurse of her choice.
3. Provision of help in the house during the period of her actual incapacity.
4. Supply of dressings, special apparatus, or means of transport when required.

There are, of course, large numbers of women who can provide one or more or all of these requirements for themselves, but the Association is strongly of opinion that the State should see to it that, by some means or other, whether by an extension of the scheme of national health insurance or by the action of local health authorities, they should all be available for every mother. There would still remain urgent need for further action to persuade women to take advantage of the means provided for them, for research into the obscure causes of puerperal sepsis and other forms of maternal morbidity, and for the improvement of knowledge, skill, and care among those who have any part to play in the responsibility for the conduct of maternity.

The statement concludes: "Fully appreciative as it is of the great need for improving the position of midwives both as to training, status and finance, the Association believes that legislation to these ends is but a small part of that which is required to remedy the imperfections of the present system, and that it is essential to take steps in rapid succession to establish a complete maternity scheme on the lines indicated in this memorandum, envisaging from the outset the needs of mothers as a whole and the methods of providing for them."

Midwives and Their Views

THE long delay in the appearance of the Midwives Bill after the promise of such a Bill had been made by the Minister of Health was due to the need to consult the local authorities which will have to administer its provisions. The interval has not been lost by organised midwives who have utilised it to find out more exactly what is the position of the midwife in independent practice at the present time. This investigation included the issue of a questionnaire to all midwives believed to be in independent practice through England and Wales, and the abundant information thus accumulated was analysed for the Midwives' Institute by Lady Forbes (Dr. Janet Lane Claypon) with the help of Dr. Elizabeth Macrory. Lady Forbes used a preliminary analysis of this material in the Fynes-Clinton lecture which was summarised in a leading article in our own columns (1935, ii., 1009). On the eve of publication of the Midwives Bill a considered report of this investigation has now been issued by the Institute in convenient pamphlet form.[1]

THE MIDWIFE AS SHE IS

The report is described by Miss E. M. Pye, president of the Institute, as a social document of importance; she emphasises the fact that here is a true picture of the midwife's life as she now lives it. Part I. gives the nearest estimate we have of the number of midwives in practice. Part II. sets out the causes

[1] The Midwife in Independent Practice To-day, pp. 32. 6*d*. (special prices for large quantities), from the Midwives' Institute, 57, Lower Belgrave-street, London, S.W.1.

which have adversely affected this practice. Here it is shown how deeply the increasing hospitalisation of parturient women ("which appears not yet to have reached its maximum") has cut into the midwife's work. The greatest factor in the demand to be delivered in hospital is here found to be the campaign of publicity by which it was expected that maternal mortality would be reduced. The belief has grown up among women that they are less liable in hospital than at home to succumb to the death which they are told may await them as a result of child-bearing; this, it is suggested, carries with it a desire to have a doctor in case anything should go wrong and also probably to avoid pain by having an anæsthetic. Other factors of course are the saving of trouble and often of cost by confinement in hospital and the small space available for the purpose in modern flats. The fees charged by hospitals in many parts are so low that it is cheaper for the mother to go there than to stay at home for her confinement, although the actual cost in hospital must be much higher. In this section of the report the question naturally arises, What is the maternal death-rate in the practice of midwives? When in the past it has been shown that this death-rate is low, the statement has often been countered with the remark that the figures did not include the deaths of women sent in from the midwife's practice to hospital. In the present investigation the cases sent into hospital are included and material is available for releasing the independent midwife from any blame for the alleged high maternal mortality. In this section also is a note on "undercutting and overlapping" in which the great increase of midwives starting practice is attributed to the large number of unnecessary midwives who are being trained. Here it is stated that in a large number of areas the handy-woman is still sufficiently prevalent to be a source of trouble. If the midwife, and the midwife only, was required to notify the birth the presence of a handy-woman conducting the confinement would easily be discovered.

A SALARIED SERVICE

The report also estimates with care the number of midwives who would be needed for the proposed salaried service. Taking 100 births in the year as the number a midwife working whole time may be called upon to attend, it is suggested that just over 2000 midwives would be needed in the large and small towns set out in the Registrar-General's annual summary for 1934. The investigation indicates that the number of practising midwives now over 60 years of age is about 580 and that 1200 others under 60 years of age will not be required. This does not include the rural or smaller urban areas, but in these there are few midwives with large practices, for most of the work is done by nursing associations, the practising midwives only taking relief work for the district nurses. In view of the probability that those displaced will be chiefly the older midwives, the report suggests that a small pension should be the form taken for compensation; women over 50 years of age cannot start a new profession nor as a rule can they take up other work. The scale of pensions and compensation suggested should be studied in comparison with those proposed in the new Bill.

QUESTION OF HIGHER TRAINING

At this opportune time appears also an appeal for the higher training of midwives in a report[2] by the Council which for 31 years has furthered this object by every possible form of publicity and in so doing has brought into being the British Hospital for Mothers and Babies at Woolwich from which highly trained midwives have gone out to all parts of this country and the dominions.

"We still greatly hope," the report runs, "that a two years' training may be demanded by Government shortly, for *all* midwives whether State-registered or not. And as such a course would greatly diminish the numbers of pupils working now in maternity hospitals, we trust that their ranks may be recruited by State-registered nurses receiving a six months' maternity nursing training in contradistinction to midwifery. This course which has been found to answer admirably in Holland has the further inestimable advantage of not interfering with the training of medical students. It is common knowledge that much of the training material, which is so urgently needed for their benefit and that of their future patients, is now absorbed by over 1500 pupil-midwives yearly who have not the faintest intention of using, on behalf of the working mothers or their infants, the experience they have gained."

MIDWIVES AND/OR MATERNITY NURSES

The annual report of the British Hospital, just issued, contains an account of the midwifery service in Holland written by Dr. Eileen Wise, visiting obstetrician, and Miss M. M. Cashmore, sister-matron, who were asked to visit the State training schools for midwives in Amsterdam and Rotterdam. They discovered that trained maternity nurses, as apart from midwives, are an integral part of the Dutch midwifery service and to this fact is due, they think, in great measure the increased maternal safety. In Holland all operative midwifery is referred to well-equipped maternity hospitals, no obstetrician dealing with complicated cases at home. The midwives are State servants with a high status; the competitive entrance examination is only passed by a quarter of the candidates. The theoretical training is directed towards making the midwife capable of thinking. Her clinical training is extensive, simple, and practical, and before its completion she acts as locum tenens for midwives absent from their practices on refresher courses which take place monthly. The larger half of deliveries in Holland are attended by midwives, the remainder by doctors and maternity nurses. The latter are State-registered nurses who, on completion of their general training, have undergone a further six months' training in State maternity hospitals when they are State examined and registered. There is another class of maternity nurse with no general training but with 18 months' training in State maternity schools, and these work among the poor under the district midwives.

ROYAL SUSSEX COUNTY HOSPITAL.—At the annual meeting of the governors on March 11th it was reported that the ordinary income for 1935 fell short of the maintenance expenditure by £8344, and that the deficit had had to be met by drawing upon the limited reserve fund. In spite of the growth of the population of Sussex, and the increased demands made upon the services of the hospital, the income had fallen; and during the year in response to an urgent appeal to provide and maintain at least another 100 beds, less than one-fifth of the money needed had been received. Commenting on the Milk Marketing Board regulations the report states: "It is surely an anomaly that a child in health can be supplied with milk by the education authorities on better terms than hospital authorities can supply milk to that child when sick." The governors regard the increased price of milk as being tantamount to a tax, and it is suggested that the rebate allowed to hospitals on the tax on certain spirits should be regarded as a precedent for granting relief on milk. The milk bill of this large hospital of 272 beds amounted in 1933 (the regulations came into force on Oct. 1st of that year) to £1467. This figure rose to £1588 in 1934 and to £1672 in 1935.

[2] Woolwich: C. F. Thorn and Son, 60, Wellington-street, S.E.

PANEL AND CONTRACT PRACTICE

Prescriptions for which the Insured Person Must Pay

IT sometimes happens that insurance practitioners are asked to issue prescriptions for patients who are receiving treatment at hospitals, possibly under arrangements made by the doctors concerned. Here is a case in point where the doctor received a telephone message from the almoner of a hospital asking him to issue a prescription for three Elastoplast bandages for a patient whose treatment at the hospital had involved the use of that number of bandages, the statement being made that unless the doctor would agree to do this the patient would be charged the value of the bandages. The doctor appealed for advice to the insurance committee and was told that an insurance practitioner is called upon to prescribe for insured persons only during the time when he is actively engaged in treating them; his responsibility to prescribe ceases during the time the patient is in receipt of treatment by a member of a hospital medical staff. This point may not appear to be of much moment when the cost involved is but a few shillings, but a rather different complexion is assumed when an appliance such, for example, as a spinal jacket is needed. This particular appliance may now be prescribed by insurance doctors when required for the treatment of fractures, diseases, or dislocations of the spine, and it seems illogical that an insured person should be at the risk of having to pay several pounds for an appliance ordered by a hospital surgeon which if it had been prescribed by his insurance doctor would have been provided free as part of medical benefit. The remedy would perhaps be for the surgeon, to whom the insurance doctor had referred the case, to inform the latter that the patient in his opinion needed the appliance, and for the insurance doctor in his discretion to order it on an insurance prescription. This procedure would follow very closely what happens when a member of a hospital staff advises a particular line of medical treatment, but would of course apply only to those out-patients who had attended the hospital on the advice of the insurance doctor.

Ophthalmic Certificates

Clause 9 (2) of the Terms of Service provides that if the condition of the patient is such as to require any ophthalmic treatment which is not within the scope of the practitioner's obligations the practitioner, if so desired by the patient, shall furnish him with a signed recommendation that such treatment should be obtained. A man recently applied to his approved society for ophthalmic benefit and a letter was issued giving instructions as to procedure. He then went to his doctor and asked for a "written recommendation," but as the doctor considered that his headaches were due to nasal catarrh—there was also slight conjunctivitis—treatment was given for the nasal condition, the doctor indicating that the question of possible ophthalmic treatment could be considered later. The patient did not return for further treatment but in due course the doctor received a letter from the society, reminding him of his obligation, stating that the society had been informed that he had declined to issue a recommendation for ophthalmic benefit as in his opinion glasses were not required, and asking quite nicely for a statement from the doctor as to the circumstances of the case. The doctor informed the society of his opinion, but was rather puzzled as to what obligation, if any, had been infringed. Clearly none at all, for the clause quoted above refers to the condition of the patient, and the mere fact that an insured person thinks he needs glasses, and obtains a letter from his society, cannot compel the doctor to give a written recommendation against his professional judgment. Societies who find the provision of ophthalmic benefit expensive will doubtless welcome the stand taken by this doctor, but it is rather hard that he should have to go to the trouble of explaining his quite proper action.

Amputation of a Finger

Referees appointed by the Ministry of Health pursuant to Article 43 (4) of the Medical Benefit Consolidated Regulations, 1928, have just issued the report of their inquiry which related to a question whether the amputation of the ring finger of the right hand at the metacarpo-phalangeal joint in the circumstances described is within the range of medical service. The operation in question was performed by Dr. X., an insurance doctor, on April 11th, 1935, in the case of Miss Y., an insured person. Dr. X. practises in Cornwall, but there was not sufficient evidence before the referees of any custom or practice of the medical profession which is peculiar to the area in which this question arose, and accordingly in arriving at their decision they did not have regard to any such custom or practice. The inquiry was held at Truro on Jan. 21st, 1936. At the time of the operation the finger was useless, an X ray examination having disclosed necrosis of the bone. The skin covering the proximal phalanx was healthy. The contentions put forward may be summarised as follows:—

ON BEHALF OF THE INSURANCE COMMITTEE AND THE LOCAL MEDICAL COMMITTEE

(1) That the clinical aspects of the case had to be taken into account.

(2) That though there were no circumstances to add difficulty to the operation as a matter of technique by reason of the state of the hand the line of the incision required to be carefully determined so as to avoid the septic area, lest the sepsis should spread to the hand.

(3) That there was a risk of secondary hæmorrhage and that referees appointed under the medical benefit regulations had held, in the case of the removal of thrombosed and varicose veins in the leg with varicose ulcer, that operation was "attended as it is incidentally by a considerable risk of secondary hæmorrhage" not within the range of medical service.

(4) That therefore the operation in question in the circumstances of this case involved the application of special skill and experience of a degree or kind which general practitioners as a class cannot reasonably be expected to possess.

ON BEHALF OF THE MINISTER OF HEALTH

(1) That the operation in question did not involve the application of such special skill or experience as aforesaid.

(2) That the difficulty of determining the line of the incision was not such as to demand in the circumstances of this case such special skill or experience as aforesaid.

(3) That the risk of secondary hæmorrhage in the hand was not comparable either in respect of its probability or difficulty of control to that risk in the leg and that therefore the decision of the referees in the case cited on behalf of the insurance committee was not an authority supporting that committee's contention.

Having considered the evidence submitted and the contentions summarised above, the referees accepted those of the Minister of Health and were satisfied that the operation in question did not involve the application of special skill and experience of a degree or kind which general practitioners as a class cannot reasonably be expected to possess.

CORRESPONDENCE

PROTECTION OF SCIENCE AND LEARNING

To the Editor of THE LANCET

SIR,—The Academic Assistance Council was formed in May, 1933, to assist scholars and scientists who, on grounds of religion, race, or opinion, were unable to continue their work in their own country. Its services have been needed chiefly to help the 1300 university teachers displaced in Germany, but it has also assisted refugee scholars from Russia, Portugal, and other countries.

In coöperation with other organisations, the Council has assisted in permanently re-establishing 363 of the 700 displaced scholars who left Germany. A further 324 are still being temporarily maintained in universities and learned institutions while seeking more permanent positions. The Council has directly received over £46,000 in donations which, with the exception of the small amount used for paying fares of displaced scholars to positions overseas, administrative expenses, and other incidental purposes, have been employed in subsidising research by our refugee guests. The Council, as the international centre for this work, has built up a place-finding organisation and information service which are proving of increasing usefulness.

The Council hoped that its work might be required for only a temporary period, but is now convinced that there is need for a permanent body to assist scholars who are victims of political and religious persecutions. The devastation of the German universities still continues; not only university teachers of Jewish descent, but many others who are regarded as "politically unreliable" are being prevented from making their contribution to the common cause of scholarship.

The Council has decided to establish as its permanent successor a Society for the Protection of Science and Learning, which will continue the Council's various forms of assistance to scholars of any country who, on grounds of religion, race, or opinion, are unable to carry on the scientific work for which they are qualified. One function of the Society will be to build up an academic assistance fund to award research fellowships, tenable in the universities of Great Britain and other countries by the most distinguished of the refugee scholars. This fund will be administered under the auspices of His Grace the Archbishop of Canterbury, the president of the Royal Society, the president of the British Academy, Lord Horder, the Hon. R. H. Brand, and myself.

I appeal confidently and urgently to all those who wish to assist in the defence of free learning and science to join the Society by paying a minimum annual subscription of one guinea. I hope that many will make a larger donation either to the Society or to the fund, or will undertake to covenant with the Society for a seven-year contribution, thus allowing us to recover income-tax on the donations. Gifts to the fund may be earmarked if desired for the establishment of particular fellowships or studentships bearing the name of the donor. This appeal is made with the full coöperation of the organisers of the National Christian Appeal which is about to be made for the destitute non-Jewish refugees from Germany, since the Society will be giving assistance to only one section—namely, the scholars, among the German refugees, irrespective of their religious affiliations. It is therefore with confidence that I ask support from both the Christian and the Jewish world, and in particular from the university world, to place this most important part of the refugee work on a firm financial basis.

Contributions and subscriptions should be sent to me at the offices of the Academic Assistance Council, 12, Clement's Inn-passage, Clare Market, W.C. 2, made payable to the "Academic Assistance Council."

I am, Sir, yours faithfully,

RUTHERFORD,
President of the Academic Assistance Council.

March, 1936.

THE NUTRITION QUESTION

To the Editor of THE LANCET

SIR,—Dr. Hutchison omits an important point from his quotation from Dr. Friend's "The Schoolboy." Dr. Friend says that "probably a considerable proportion of the observed increase" (of septic conditions, since 1923) "is due to the fact that about that year the regulations as to sending boys to the infirmary were more strictly enforced, and treatment in the houses was no longer allowed." Dr. Hutchison does not mention Dr. Friend's most striking observation: that the attack-rate of fractures went up in a surprising manner during the period when the boys had vegetable margarine instead of butter, and fell promptly when butter was used again; surely satisfactory evidence of the protective action of this dairy product. Nor does Dr. Hutchison mention that during the period of war shortage, coincidentally with the physical regression, an increasing number of boys showed a disability to cope adequately with the normal school routine; nor the fall in the incidence of acute and subacute rheumatism after the increase of fat in the diet. Surely if Dr. Friend's very qualified evidence about septic conditions is worth quoting, his unqualified evidence on other points is worth quoting also. Strangely enough, Dr. Hutchison also omits the most convincing piece of evidence in support of his thesis—the increased frequency of complications of influenza since the boys have been on a more generous diet.

Dr. Hutchison contradicts himself when he first ascribes lowered resistance to tuberculosis to a deficiency of fat in the diet, and later maintains that there is no proof that dairy products protect us against any of the great killing diseases. The fact that tuberculosis is declining may be evidence that the nutrition of the country is better than it was. But tuberculosis still kills about 30,000 a year; there is still much room for improvement. The death-rate from diabetes is only about one-fifth of this. Even if the increase in the prevalence of diabetes is due to an increase of over-eating, the choice before us is not between under-feeding with the danger of tuberculosis and over-eating with the danger of diabetes. There are such things as common sense and moderation.

It is true that Dr. Spence says that, in his opinion, the main immediate cause of the apparent malnutrition of city children in Newcastle is the physical damage done by infective disease; but he also ascribes the failure of the children to recover equally to housing conditions and inadequate diet. Dr. Hutchison was a member of the committee appointed by the British Medical Association to determine the minimum expenditure on diet compatible with

health and working capacity. As the report of the committee was published without any reservations by Dr. Hutchison it may be assumed that he accepted their conclusions. The Newcastle report, in which Dr. Spence's observations appear, and numerous other surveys show that a considerable proportion of families cannot afford, and actually do not get, diets up to the standard of this committee's minimum. This applies particularly to families with young children.

I am, Sir, yours faithfully,

Bishops Stortford, March 22nd. JOHN MARRACK.

THE ZÜND-BURGUET TREATMENT

To the Editor of THE LANCET

SIR,—My attention has been drawn to Mr. Barwell's assertion in his article on Prognosis in Deafness (THE LANCET, Jan. 25th, p. 214) that the results of the Zünd-Burguet treatment "appear to be evanescent." As one who has had ten years' uninterrupted experience of the electrophonoïde method, I feel it incumbent on me vigorously to deny this aspersion upon what I firmly believe to be a valuable treatment when properly understood and properly applied. A quarter of a century ago, at an annual congress of the Société Française d'Oto-Rhino-Laryngologie, a lively discussion on this subject was closed unanswerably by a member with the words, "My dear colleagues, the outcome of this long discussion is that those who understand the method of Zünd-Burguet are favourable to it, while those who know nothing about it are unfavourable to it." Apparently the situation to-day is exactly similar.

Out of a record of some four hundred cases I would quote the following as examples of permanent improvement:—

(1) A girl of 16, suffering from chronic catarrhal deafness, who in three years has improved for the voice hearing from R. 8″, L. 18″ to R. 78″, L. 240″ and is thus able to earn her living as a typist. (2) A lady who, at 21, experienced an attack of unilateral subacute otitis which left her with a reduction of voice hearing in one ear to 24″, and a severe, increasing vertigo which incapacitated her for three years. She underwent fifty treatments, with the result that the vertigo disappeared after ten sittings *and has never returned*, and the hearing became normal. She has remained thus normal for a period of nine years and has become an ardent mountaineer. (3) A lady of 22 with otosclerosis (so diagnosed by several otologists). Treatment in 1925 brought a voice hearing of R. 14″, L. 4″ after fifty sittings to R. and L. 180″. She has kept touch with me and has not gone back. She is now earning her living as a teacher. (4) A lady of 29, also a case of otosclerosis. Whisper hearing in 1932 was R. 10″, L. 15″. In 1933 it had reached, under the electrophonoïde treatment, R. and L. 240″, an improvement which has so far (1936) remained permanent. (5) A lady of 39, who became deaf in one ear from mumps in 1927. I was lucky enough to get her under treatment within a month of its onset. This case was successful and the result has been retained. Details will be found in the *Clinical Journal* for Feb. 8th, 1928.

My results in cases of presbyacusis were published in your columns (1934, ii., 306) and speak for themselves. The cases just quoted are but a very small tithe of examples of *permanent* successes that I have obtained. The two greatest factors in such results are *perseverance* and *coöperation* on the part of both patient and surgeon. Some of my patients have obtained lasting results in a comparatively short time; others have done so only after two years. These essentials do not appear to be appreciated by those who have decried the Zünd-Burguet method. I need hardly mention, in addition, that appropriate constitutional treatment is a necessary concomitant. This point I have endeavoured to make clear in my "Otosclerosis" (London, 1933).

I am, Sir, yours faithfully,

Harley-street, W., March 19th. MACLEOD YEARSLEY.

PROGNOSIS IN SPINAL CARIES

To the Editor of THE LANCET

SIR,—I am glad to read Sir Henry Gauvain's elucidation of the points I raised. I feel that his letter forms a valuable addendum to what he had already written. At the same time I am sorry to note that the word "discharged" is acquiring a double meaning. I am aware that in the services the letters D.D. are being used to designate fatalities, but in this case the outcome is specified by the qualification discharged dead. It was this word "discharged" that led me astray as I associate this word with the hospital's designation for cases which have left the institution cured, relieved, or incurable. I am correcting the figures in my own copy of THE LANCET to read:—

Period under review September, 1908, to March 31st, 1935—

Cases admitted	1666	
Still under treatment		84
Discharged—		
Cured, relieved, incurable ..		1521
Died in hospital		61
	1666	1666

I am, Sir, yours faithfully,

Leeds, March 21st. S. D. PERSY FISHER.

GASTRIC ACIDITY AND ITS SIGNIFICANCE

To the Editor of THE LANCET

SIR,—Dr. Hurst's letter in your issue of Jan. 18th interests me much because Dr. Vanzant and I have recently studied the relations between hæmoglobin and gastric acidity in some 3500 persons with hæmoglobin readings ranging from 25 to 130 per cent. and no demonstrable disease in the stomach and duodenum. We have found that, as the hæmoglobin falls off below 75 per cent. mean gastric acidity decreases, and the incidence of achlorhydria rises.

While making this study we found records of dozens of atypical cases in which, in spite of the presence of a marked secondary anæmia, the acidity was higher than normal. On examining these records we found that in most cases the probability was that the patient had an ulcer; the only reason why the diagnosis had not been made was that the roentgenologist had not been able to see a lesion. We then examined dozens of records of patients with marked anæmia due definitely to bleeding from an ulcer and found in almost every case that the acidity was 10 to 15 points above normal, instead of the 20 or 30 points below normal that was to be expected from our experience with persons with severe hypochromic anæmia and no ulcer.

These observations can now be of great help to the physician who cannot find the cause of a severe secondary anæmia. If the gastric acidity is low, he should continue to search for perhaps a carcinoma of the stomach or cæcum or for bleeding hæmorrhoids; but if the acidity is abnormally high, and especially if the patient gives a history suggestive of peptic ulcer, the physician can be almost certain that an ulcer is present, even if it cannot be visualised. As

a corollary of this, when a markedly anæmic patient comes with a diagnosis of duodenal ulcer but a low gastric acidity and perhaps few symptoms of ulcer, the clinician will do well to keep searching for the source of the bleeding because it probably is not in the duodenum. Actually, in several cases like this in which the search was continued at the Mayo Clinic, a bleeding lesion was found in the large bowel.

On re-reading Dr. Hurst's letter, one can easily understand now why 17 of his 41 anæmic patients could have a high gastric acidity. Twenty-one were suffering with duodenal ulcer. All of which shows again that when two able observers disagree it is usually because their methods or their material were different or because some unrecognised extra factor was at work.—I am, Sir, yours faithfully,

WALTER C. ALVAREZ.

Mayo Clinic, Rochester, Minnesota, March 10th.

PRURITUS OF THE VULVA AND ANUS

To the Editor of THE LANCET

SIR,—May I refer to several points raised by your appreciative and critical annotation on the subject of my papers in your issue of March 14th (p. 617). While it is true that the incidence of skin eruptions at any site may "cause" the symptom of pruritus at that site, until the ætiology of the skin eruptions is determined can any claim to have established the "cause" of their symptoms be upheld? The differentiation of the different types of skin eruptions in which irritation of the vulva is a prominent symptom, when the eruption occurs on the vulva, does not solve the ætiology of these eruptions. The ætiology of many eruptions is still unknown. I submit that generally the various types of skin eruptions which occur on the vulva are not differentiated, but that they are merely classified under their most prominent symptom and are called "pruritus vulvæ."

Your annotation expresses surprise at the infrequency of ringworm. Scrapings from suspected cases were in fact negative, and, if results of treatment can be regarded as diagnostic, cure was obtained without the use of fungicides. In regard to the absence from my list of pruritus of "a menopausal or endocrine" origin, does not such a diagnosis involve the assumption that the skin of the vulva is governed by internal factors which have no influence on the skin at any other site? I am unaware of any records of cases of generalised pruritus, or of pruritus at sites remote from the vulva, in which this diagnosis has been definitely established, and in which no skin changes were present. It is a facile diagnosis, acceptable to the patient, since it often confirms her own opinion, and it absolves from further examination of the parts. It is also in harmony with the opinion which is very commonly accepted that the skin of the vulva is a pelvic organ: as the expression goes, "pruritus vulvæ belongs to the gynæcologist." It is for this reason that cases of vulval pruritus are rare in the skin clinics of general hospitals; they are more commonly referred to gynæcological clinics. Few, if any, gynæcologists claim a specialised knowledge of skin affections, and the absence of a differential diagnosis of vulvar skin eruptions is therefore not surprising.

Dr. Agnes Savill's conclusions in your issue of March 21st raise the curious problem as to why fæcal organisms should suddenly become pathogenic to the skin, for even with the most careful hygiene it is inevitable that the parts near the anus should be contaminated by these organisms, from infancy upwards. Analysis of a large number of urines in my cases yielded such varied results that no definite conclusions could be drawn from them, and irritation appeared to be equally acute in the patient with a neutral sterile urine; with a urine loaded with phosphates; or with a urine in which there was an excess of oxalates, as in the cases in which cultures of *B. coli* were obtained. The analysis and treatment of vaginal discharges do not usually fall within the province of the skin physician, but the results of treatment may, particularly where the patient has some idiosyncrasy.

I have had one case of anal irritation due to worms, but as the eruption did not involve the vulva, this case was not included in the series recorded.

I am, Sir, yours faithfully,

ELIZABETH HUNT.

Manchester-square, London, W., March 23rd.

EPILEPSY AND ALLERGY

To the Editor of THE LANCET

SIR,—The interesting case recorded by Drs. Costello and Fox in your last issue, with reference to an unusual relationship between asthma and epilepsy, raises the question of whether epilepsy can be associated with allergy. I have recently seen in consultation an almost identical case, except that epilepsy was preceded by migraine which invariably culminated after a few hours in either petit or grand mal, on the occurrence of which the migraine ceased. The skin tests to foods, &c., all proved negative. The patient, a woman of 22, had suffered from migraine and epilepsy for many years, and the case may be of interest as affording additional evidence that some cases of epilepsy may be of allergic origin. As far as could be ascertained, there was no family history of allergy. The cyanosis referred to by Drs. Costello and Fox was not, of course, present in a case of migraine, but information as to the mechanisms of the two conditions would be of interest.

I am, Sir, yours faithfully,

Harley-street, W., March 23rd. G. H. ORIEL.

MORAL PROBLEMS IN HOSPITAL PRACTICE

To the Editor of THE LANCET

SIR,—The American work with this title by Father Patrick A. Finney, C.M., reviewed in your issue of March 14th (p. 640), has already been severely criticised in the October, 1935, number of the *Catholic Medical Guardian*, the organ of the Catholic Doctors' Guild. The "nihil obstat," and other marks of ecclesiastical approval that it bears, certainly imply that the book contains no actually heretical teaching, but they do not guarantee that the author will command universal acceptance by his co-religionists in his application of Catholic principles to medical practice. On one important question Father Finney has failed to distinguish between a decided and binding dogma of the Church and a matter on which opinion is divided—viz., ectopic gestation. Catholic doctors in this country are advised that operation on the unruptured tube is perfectly permissible, since the tube is in a diseased state, and they do in fact carry out the usual procedure in treating this condition.

We entirely concur that "the conduct which is enjoined by Father Finney on hospital sisters" is contrary to the accepted relationship between the medical and nursing professions in this country and places a quite unsuitable responsibility on the nursing sister. Naturally it is assumed that in hospitals conducted under Catholic auspices operations

definitely regarded as unlawful by Catholics, such as direct abortion and sterilisation, cannot be performed, but this does not in our opinion justify turning a nurse into the surgeon's invigilator. It appears, however, that in America the situation is different to anything that prevails in Europe, and there are many Catholic hospitals owned and managed by Catholic religious orders which have no Catholic doctor on the staff and no priest readily available.

Finally we would point out that since Catholics attach much greater importance to the sacrament of baptism than do many others, it is necessary to give particular and detailed instructions to the nurses in the interests of the child. Here again, however, we must admit that Father Finney goes far beyond the common interpretation of medical obligation, and also of medical practice. The "duty" to baptise the unborn child is strictly conditioned by a further obligation not to mishandle the dead mother uselessly or to endanger the living. It is hardly conceivable that nurses should perform post-mortem Cæsarean sections or that they should rupture the membranes in order to baptise an infant only possibly alive! Few Catholic doctors in the course of a long professional life feel called upon to do either of these things.

The Catholic faith is rational and seeks to conserve life, the life of the body and the life of the soul. It is unfortunate if its aims should be misunderstood through an interpretation tinged perhaps with excess of zeal.—I am, Sir, yours faithfully,

ERNEST E. WARE,
March 22nd. Master of the Catholic Doctors' Guild.

THE FUTURE OF THE CORONER

To the Editor of THE LANCET

SIR,—I have been much interested in the controversy about the coroner system which has been discussed during the past year in your columns and was the subject of a leading article in your issue of Feb. 15th. As a result of similar scandals arising in the coroner system in Suffolk County, Massachusetts, which includes Boston, the coroner system was abolished in this State by legislative act in 1877. The Massachusetts Bar Association and the Massachusetts Medical Society through their joint action brought about this change. They based their criticisms upon the following:

1. The coroner was required to exercise both medical and legal functions, a straddling of two professions, difficult to compass even for an exceptionally brilliant person.
2. The office of coroner, while perhaps necessary under the primitive conditions existing in the early Anglo-Saxon period, had become an anachronism following the development of police and judicial systems.
3. In the investigation of a death by violence two primary questions present themselves: (*a*) what caused the death? the answer to which can only be supplied by medical investigation; (*b*) who caused the death? a matter for the police and the courts to determine.

Under the Massachusetts medical examiner system, medical men are called upon to determine the cause and, if possible from the medical facts disclosed, the manner of the death, in cases in which death is supposed to be due to violence. Inquests are limited to cases in which death may have been due to the act or negligence of another, and are held before a judge of a court of first instance, without a jury. If probable cause of action is found the suspect is held for grand jury investigation, and if an indictment is issued the evidence is presented before a superior court with jury. Within the recent period inquests have been sharply limited. Deaths under anæsthetics, for example, are not inquested unless there is an indication of criminal negligence. In most other cases the police and the lower courts have already taken cognisance of the matter before the medical investigation has been completed in detail.

The medical examiner system has been subjected to 58 years of trial in this jurisdiction and has been adopted in neighbouring States, in New York City, and in Essex County, New Jersey. As I have suggested, the system makes for simplicity, utility, and efficiency.

I am, Sir, yours faithfully,

TIMOTHY LEARY,
Medical Examiner, Suffolk County, Massachusetts.
Boston, March 10th.

AN ADDRESS IN HARLEY STREET

To the Editor of THE LANCET

SIR,—In your issue of March 14th you published a letter with reference to medical refugees in this country. I have consulted the Jewish authorities interested in the question and find that to the best of their knowledge about 140 German doctors have received permission to practise here, of whom 35 have been permitted to practise in the Harley-street area. This latter group consists of men of specialist rank in their own country. To see these figures in their proper perspective, may I add that there are about 57,000 names on the Medical Register and I believe there are about 40,000 doctors in practice in Great Britain.

I am, Sir, yours faithfully,

March 24th. SAMSON WRIGHT.

THE RECORD BREAKER

To the Editor of THE LANCET

SIR,—In your account last week (p. 664) of the discussion on Fatigue at the Hunterian Society I am reported as having said that "the record breaker was not usually the educated person." I shall be obliged for the opportunity to correct this misstatement which is likely to call forth a storm of indignant protest; in fact, premonitory rumbles have already reached me. In replying to questions, I had endeavoured to differentiate athletic psychological types, in particular contrasting the highly strung, usually encountered in the devotees of events of speed and those demanding accuracy of technique, with the more stolid unemotional participants in long-distance events and feats of endurance. The great majority of the former belong to what for convenience one terms the educated class; with rare exceptions the latter are manual workers. No mention of "record-breaking" was made: were this under consideration, an analysis would show that the educated and, on occasion, the very highly educated are well represented.

I am, Sir, yours faithfully,

Brook-street, W., March 21st. ADOLPHE ABRAHAMS.

A QUESTION OF PROFESSIONAL CONFIDENCE

To the Editor of THE LANCET

SIR,—The letter of Iatros moves me to send you particulars of another tragedy also revolving round the gonococcus, though in this case I am happy to add that the patient has not suffered.

Dr. A, practising in contract with the X insurance committee, treated his patient Miss N for acute gonococcal vaginitis and endometritis and when she was convalescent sent her into the area of Dr. B, practising in contract

with the Y insurance committee. Before she made the journey to stay with her aunt, who with her husband are valued patients of Dr. B's, Dr. A wrote to Dr. B saying "you will shortly be asked to accept as a temporary resident Miss N" and giving particulars. While Miss N was under his care Dr. B had occasion to inform Dr. A of her progress both by telephone and by letter, eventually returning her to his care with a final letter. Then came the completion of the temporary record form. Dr. B, having some acquaintance with the organisation of the Y insurance committee's office and knowing girls were in employment there, did not feel inclined to make a diagnosis of gonorrhœa which might meet their eye; he further had a delicacy about possible publication within a few miles of the residence of the patient's uncle and aunt of a fact which he had managed to avoid telling them when the patient was actually under treatment in their house—namely, that their unmarried niece had acquired venereal disease. He therefore completed the form so far as was necessary to inform Dr. A of facts not included in the direct correspondence.

The clerk to the Y insurance committee thereupon returned the record form on the ground that it contained insufficient professional details; and also acted in the same way in a similar case. Dr. B saw no reason to alter a form which he had every reason to consider satisfactory to Dr. A; and, since the action of the clerk constituted evidence that his professional statements were scrutinised by a layman, to wit, the clerk, he had every reason to avoid giving details which would constitute a breech of professional confidence. He has therefore in cases where there is reasonable ground to suppose patients would object to disclosure of details treated them without acceptance as temporary residents, to the detriment of his pocket but the integrity of his reputation. He obviously cannot return records which the clerk has already refused to accept and forward; and every reason to decline to amplify them to satisfy the clerk.

Since these occurrences the clerk has included the two temporary record forms in complaints made by him against Dr. B, and at the hearing of the first of these complaints stated that two of the temporary record forms had been returned by him because they were not full enough, and Dr. B had failed to return the same. This statement passed unchallenged by any of the members of the medical service subcommittee which has twice recommended deductions from Dr. B's remuneration for delay in returning medical records of which these are two. Dr. B cannot explain himself to the insurance committee without breaking confidence; and when he challenges the right of the clerk to return records for reasons connected with professional information and comments that another insurance committee known to him make provision for the forwarding of such records from one practitioner to another under cover, the committee reply that they "join issue."

I am, Sir, yours faithfully,

March 21st. IATROS II.

To the Editor of THE LANCET

SIR,—I was much interested in the letter of "Iatros" last week and in your reply, as I have recently dealt with a similar case. As the letter reads, and with the lack of fuller information, Dr. A was in my opinion absolutely right in the action he took and in giving the information he did to the girl's mistress. Granted that it was not strict etiquette to examine the bed letter, at any rate the girl was Dr. A's patient and the inspection of the letter was made quite openly in the presence of the nurse. Evidently some condition was present quite different from an acute abdomen. In a general hospital, as this obviously was, a girl is not placed in a V.D. ward without the corroboration and positive evidence which the hospital is capable of obtaining and verifying; we may be sure that the girl was suffering from a gonococcal infection.

For myself I rather blame the physician in charge of the case that he did not advise Dr. A that the girl was not a case of "acute abdomen" for which she had been sent to the hospital. Knowing what Dr. A did (apart from his inspection of the bed letter) was he to allow this girl to return to an unsuspecting mistress who would continue to believe that the girl's past had been a creditable one, to a house where perhaps there were young children, where perhaps she would use the same towels and sleep in the same room with another maid? Which of us would like this to happen in our own house? Knowing the months these cases often take to be cured, is it probable that a general hospital would keep a patient all this time, and what about recrudescence after apparent cure? One is, I am afraid, a trifle suspicious of these girls with a "highly creditable record" and in any case she would not remain innocent long after a stay in the V.D. ward of a general hospital. What alternative had Dr. A, and what would have been his position if as a result of his silence others had become infected? The dismissal was perhaps sent rather crudely and suddenly to a girl with a highly creditable record—hence her hysterical state. It might have been wiser if Dr. A and the mistress had decided to tell the girl that the illness would be a long one and that the mistress could not await her return.

In your note you mention that the condition present might have been confused with other conditions such as effects produced by contraceptive measures. This would not be very creditable to the bacteriological staff of a general hospital, and the fact that she was in a V.D. ward should justify Dr. A in the action he took.

I am, Sir, yours faithfully,

March 22nd. F.R.C.S.

A DISCLAIMER.—We have received from Dr. Stanley Hartfall and Dr. Hugh Garland a disclaimer of any association with the recent publicity given in the press to the gold treatment of rheumatoid arthritis. The connexion of their names, they state, with the articles in question has been due to the action of a news agency which has circulated paragraphs taken from a short communication by them to the last number of the Leeds Medical Society Magazine.

PARIS

(FROM OUR OWN CORRESPONDENT)

DEATH OF ARNOLD NETTER

AFTER addressing a meeting in Paris on March 1st of the Assemblée française de Médecine Générale, Dr. Arnold Netter died suddenly while the discussion was still in progress. Professor of the faculty of medicine of Paris and honorary physician to the Trousseau Hospital, he had distinguished himself as a pædiatrician and had made valuable studies of broncho-pneumonia, cerebro-spinal meningitis, infantile paralysis, and lethargic encephalitis; his work on the relationship between zona and chicken-pox was also of considerable value. The dramatic circumstances of his death are reminiscent of a scene at the Academy of Sciences, before which Dr. Lucas-Championnière was presenting a report when he collapsed suddenly and died. Dr. Netter was an

octogenarian, but his last discourse, on the fixation abscess with special reference to its use in encephalitis, had won applause for its intrinsic merits as well as in tribute to its author's personality. It may be noted that the opinion of the meeting seemed strongly in favour of the use of fixation abscesses in many forms of illness; though a more critical attitude was maintained in at least one quarter.

CREMATION IN FRANCE

In the March number of *Annales d'hygiène* Dr. Emile Malespine has published a historical survey, conceived in a philosophical spirit, of the disposal of the dead. As he points out, the mode of destruction of a dead body is far less complicated than the psychological and spiritual problems connected with it. "The problem of the cadaver is inseparable from the problem of the cult of the dead, and this cult has its roots in the deepest forces of humanity and the spirit of religion, and it dominates the social life. A nation loses its raison d'être, a nation dies if it no longer feels the mysterious threads attaching it to its dead and to the past." It was during the French Revolution that the idea of cremation took concrete form in a project for its realisation, but this project was referred back to a commission in which it was duly buried. It was not till 1874 that cremation was again considered as a practicable solution of the problem of the disposal of the dead. In this year the bodies of three women were cremated in Germany in a Siemens furnace. The idea spread, and soon schemes were afoot for the creation of crematoria in most of the large towns of Europe. In 1889 the crematorium of Père-Lachaise in Paris was inaugurated, and in the same year 49 cremations were effected in this centre. Since then there has, indeed, been a steady rise in the number in Paris, from one decade to another, but the figures certainly do not testify to any great and popular movement in favour of this mode of disposal of the dead. Thus in 1890 there were 121 cremations. In 1900 the number rose to 297, and in 1910 to 473. There were 560 cremations in 1920, 899 in 1930, and 904 in 1934. At the present time cremation is requested in barely 1 per 1000 deaths, and it does not seem as if in France it is likely to make great headway. Why? Dr. Malespine is careful to avoid specific references to the attitude of the Roman Catholic Church to cremation, and he seems more inclined to be philosophically resigned over, than to tilt against, those psychological inhibitions which play so important a part after as well as during life. Respect for the dead cannot be contemptuously dismissed with such a catchword as "fetishism of the cadaver."

CENTENARY OF THE ROYAL MEDICAL BENEVOLENT FUND

THE hundredth annual general meeting of the supporters of the Fund was held in the library of the Medical Society of London on Tuesday last, March 24th, at 5 P.M., Sir THOMAS BARLOW, president of the Fund, presiding. The members stood in silence for a brief space in respectful tribute to his late Majesty, King George V., a patron of the Fund since 1913.

Mr. R. M. HANDFIELD-JONES, hon. secretary, then presented the annual report. He said that the annual meetings were purely formal and designed to meet statutory requirements. But he was able to state that the president had invited the honorary local secretaries to meet at his house to discuss an appeal to be made in April and sent to everyone on the Medical Register, except where a benevolent fund is already in existence. The meeting at Sir Thomas Barlow's house would discuss how the appeal can be made more powerful. With the same object a conversazione will be held shortly, when the Royal Society of Medicine has offered the use of its premises and have asked the members of the Fund to be their guests.

ANNUAL REPORT

He then read the report which showed a story of expansion, very slow at first but substantial of recent years. For example, while in early days the annual subscriptions never exceeded £2250, by the ninetieth year of the Fund the income from this source had risen to £7000 and had reached £14,500 in the centenary year. The committee however had had to expend nearly £700 in annual grants more than was actually received in income during the year, so numerous and urgent had been the appeals. By the jubilee year of the Fund (1886) the Fund had distributed £60,000 among the less fortunate members of the profession; by the centenary year close on £400,000 had been thus expended. The report concluded by stating that a brief historical record of its activities, written by Sir Humphry Rolleston, would be issued in April with the general appeal to practitioners.

Commenting on the report Sir THOMAS BARLOW remarked that he did not know of a charity which displayed more kindliness in the way it was administered.

FINANCIAL STATEMENT

Dr. LEWIS G. GLOVER, hon. treasurer, in presenting the accounts, pointed out that from January to December grants are allocated carrying on for the next year, thus committing the Fund to a large expenditure in the immediate future. The Fund was solvent but care had to be exercised over expenditure. The number of grants and annuities had increased by 138 over the previous year; in 1935 there were 240 more beneficiaries than in 1927. The money invested at the moment was £225,000; £2058 had been received through the B.M.A., allocated by subscribers to the Fund. The actual amount of money distributed was £2415 more than was given in the last year, including £865 for Christmas gifts, money resulting from Sir Thomas Barlow's letter in the medical press at Christmas, and from collections at meetings, mostly B.M.A. and panel committees. £1123 were received from the Ladies' Guild as the proceeds of a charity matinée, and £207 from the provinces as the result of dinners and dances and social functions held in aid of the Fund. The working expenses were 9 per cent. this year as against 9·3 per cent. last year, and he would point out that societies analogous to their own in calculating percentage of working expenses take into account all money received in legacies, in which case the expenses of the Fund would be only 5 per cent. of the total income received.

Dr. W. P. S. BRANSON expressed the gratitude of the meeting to the honorary officials of the Fund, and Dr. HERBERT SPENCER, who seconded the proposal, said he thought £100,000 would be a good figure to aim at for the centenary appeal.

At the conclusion of the meeting the hon. treasurer announced, relative to the special appeal which is to be issued in April, that Sir Thomas Barlow had headed the list of contributors to the centenary fund by a donation of £1000.

OBITUARY

ALEXANDER ROBERT TWEEDIE, F.R.C.S. Eng.

AURAL SURGEON, NOTTINGHAM GENERAL HOSPITAL

THE death of Mr. Tweedie, the well-known otologist and laryngologist of Nottingham, occurred suddenly in Nottingham on Wednesday, March 18th.

Alexander Tweedie received his medical education at St. Bartholomew's Hospital, entering the medical school with a scholarship, qualified in 1900 with the English double diplomas, and in the following year obtained the F.R.C.S. Eng. After qualification he did post-graduate work in Vienna and then held a resident appointment at the Royal Free Hospital, but having selected laryngology as a specialty he became clinical assistant to the Hospital for Diseases of the Throat, Golden-square. He then went into practice in Nottingham where he was prompt to make his mark. He was elected assistant surgeon to the Nottingham General Hospital and to the Children's Hospital, and also held the appointment of aural surgeon to the Midland Institution for the Blind. In the South African war he served as civil surgeon in the South African Field Force. On his return to practice he became surgeon to the ear, nose, and throat department of the General Hospital and laryngologist to the Nottingham City Mental Hospital, and soon had a large consulting practice. As the result of these varied experiences he made well-informed communications to the *Journal of Laryngology, Rhinology, and Otology*—to the staff of which journal he was attached—to the *British Medical Journal*, the *British Dental Journal*, *The Lancet*, and the *Journal of the R.A.M.C.*, while in collaboration with Keith he contributed to the *Proceedings* of the Royal Society of Medicine a communication on congenital anomalies of nose, palate, and upper lip. This does not exhaust his communications to the *Proceedings* of this society, while he was a useful contributor to the debates and became president of the otological section. He was a prominent member of the Nottingham Medico-Chirurgical Society and an ex-president of this society. He was a corresponding member of the Austrian Otological Society and the Paris Society of Laryngologists, and treasurer of the Oto-rhino-laryngological Collegium.

Tweedie did fine and varied service during the European war. He personally raised a second line of ambulances and went overseas to be present at the opening of the Gallipoli campaign. He had under his administration a large medical organisation at Alexandria, served in the expedition to Tripoli against the Senuse, and had at one time charge in upper Egypt of a large medical district where he was commanding officer at the Citadel Hospital, Cairo. He was present at the final assault on Gaza as medical officer to one of the divisions, and joined in the pursuit of the Turks to Jaffa and Jerusalem. He was demobilised with the rank of lieutenant-colonel and was mentioned in dispatches. After the war, on his return to Nottingham, he found time in addition to the care of his practice to play an important part in the institutional care of the deaf and of the blind while also acting as local aural specialist to the Ministry of Pensions. In 1920 he was elected to the Nottingham City Council and served on various committees in connexion with health, care of mental deficiency, and management of asylums, but he did not seek re-election at the end of his term.

His death occurred in a dramatic manner. He had been present at a scientific meeting in Nottingham and had just spoken the closing words of the meeting when he suddenly collapsed and died. He was not known to have been in ill-health.

THOMAS MAJOR TIBBETTS, M.D., D.P.H. Lond.

Dr. T. M. Tibbetts, whose sudden death occurred at the age of 67 on March 13th, was a well-known practitioner in Cradley Heath and the surrounding country. He received his medical training in Birmingham and graduated as M.B. in 1892, taking the D.P.H. of the English Royal Colleges a little later. His whole professional life was passed in the Cradley Heath district where his services to public health were varied and valuable. He was for 40 years M.O.H. to the Quarry Bank U.D.C., and in his reports made outspoken attacks on sanitary defaults of overcrowding and other abuses. He became accepted as a leading authority on these subjects, while on the institution of the National Health Insurance system his activity on behalf of the great movement in the early days was of great local influence. In 1916 he wrote a useful treatise on the "Duties and Perplexities of the Panel Doctor." He treated the subject with breezy cheerfulness and plain good sense, and though not forgetting the duties and obligations of the medical man towards his profession, pointed to the duties, owed by the profession to the State, which by the National Insurance Acts were brought into the form of a contract. Dr. Tibbetts is survived by his wife, a daughter, and three sons, one of whom, Dr. A. Tibbetts, was practising in partnership with him.

SIR KEDARNATH DAS, C.I.E., M.D. Calcutta

Sir Kedarnath Das, whose death is announced from Calcutta, was principal of the Carmichael Medical College, and professor of obstetrics and midwifery there. Born in 1867, he was educated at the Scottish Churches College and Calcutta Medical College, and graduated in 1892. His appointment to the Carmichael College came in 1919 after long service to the Campbell Medical School, and he has for many years been the doyen of the medical profession in Calcutta. To Mr. V. B. Green-Armytage we are indebted for the following appreciation of his former colleague:—

"Kedarnath Das was a man of outstanding ability and striking appearance, standing well over 6 feet in height. Exceedingly well read, his main hobby was his library and the collection of data for his monumental work, 'The Obstetrics Forceps—Its History and Evolution,' which meant 12 years of unremitting patient toil and involved an enormous amount of cross-correspondence between authorities throughout the world; and when it is remembered that this correspondence was done in his own handwriting, working in a climate not conducive to burning the midnight oil, with a fan whirring above, winged insects buzzing around and sweat pouring down his arms, one must but applaud his inspired enthusiasm and admit that he produced the only masterpiece on this subject that has ever been published in the English language.

"Kedarnath Das was India's greatest obstetric *guru*, and wrote innumerable articles on his own speciality. The honours he received gave pleasure to all because they were well earned by integrity, loyalty, and sheer personal merit. He was much

beloved by all his professional brethren, and as a consultant and administrator, his experience and acumen was of the utmost value. He was particularly proud of the fact that he was the first Goodeve Scholar at the Eden Hospital, and was in close touch with it and its professors throughout his life.

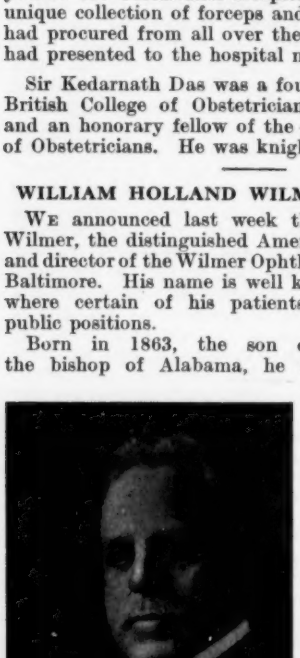
"Whatever he did, he did thoroughly with punctilious care as regards detail and procedure, and I remember when we first opened the DumDum Aerodrome, he was one of the earliest to join, and although well over 60, was one of the first to make a flight over Calcutta, taking intense joy that he was thereby inspiring the youth of Bengal to become air-minded. His house was ever open to all medical men in Calcutta and many a pleasant afternoon I have spent there. Nothing gave him more pleasure than showing you round his library and then taking you to the Carmichael Hospital to demonstrate his unique collection of forceps and appliances which he had procured from all over the world, and which he had presented to the hospital museum."

Sir Kedarnath Das was a foundation fellow of the British College of Obstetricians and Gynæcologists and an honorary fellow of the American Association of Obstetricians. He was knighted in 1932.

WILLIAM HOLLAND WILMER, M.D. Virginia

WE announced last week the death of William Wilmer, the distinguished American ophthalmologist and director of the Wilmer Ophthalmological Institute, Baltimore. His name is well known in this country where certain of his patients enjoyed prominent public positions.

Born in 1863, the son of Richard Wilmer, the bishop of Alabama, he received his medical education at the University of Virginia, graduated in medicine there in 1885, and undertook a long course of post-graduate study in his own country and in England. He contributed to scientific journals articles on various aspects of ophthalmology and also on medical aviation in which he was greatly interested. At the seventeenth annual conference of the Oxford Ophthalmological Congress he delivered a very good address on the results of the operative treatment of glaucoma.



DR. WILMER

At the outbreak of war Wilmer already held a commission in the medical reserve corps of the U.S. Army. He became appointed commandant of the Medical Research Laboratories (Air Service), Long Island, and at the close of hostilities was in surgical charge of the air service of the U.S.A. Expeditionary Forces. He was awarded for his services the D.S.M. medal in 1919 and was later appointed a Commander of the Legion of Honour. His professional, philanthropic, and social duties in his own country were numberless, and at the time of his death he was professor of ophthalmology at the Johns Hopkins University and director of the associated Wilmer Ophthalmological Institute. This institute expresses a desire among Wilmer's patients and friends that a wide scope should be given to his activities and that his name should be commemorated in connexion with them. In coöperation with the Rockefeller Foundation and the Commonwealth Fund a sum of nearly four million dollars was raised and the Wilmer Ophthalmological Institute was started providing an opportunity for the study of every phase of ophthalmology. In 1929 General Wilmer was elected president of the Association of Military Surgeons of the United States.

DOROTHY MABEL HANSON, M.B. Liverp.

WE regret to announce the tragic death, on March 21st, of Dr. Dorothy Mabel Hanson, who was killed instantly when her car was crushed between two trams near Westminster Bridge. Dr. Hanson was educated at the Belvedere School, Liverpool, and subsequently studied at the Bergman-Osterberg Physical Training College, Dartford, for at that time she intended to become a teacher of games and gymnastics. After teaching for a year at a school in Southend-on-Sea she went to the Manchester School of Massage to study for the teachers' certificate of the Chartered Society of Massage and Medical Gymnastics. With this qualification she returned to Dartford to teach medical gymnastics, but left again in order to qualify as its medical officer by securing the M.B., B.Ch. degree at the University of Liverpool, her home town. Apart from these years the whole of the rest of her working life was spent in the Dartford College. As lecturer in anatomy and remedial exercises and as resident medical officer she fulfilled two quite distinct functions and therefore had opportunities of coming into perhaps more intimate contact with succeeding generations of students than any other teacher. She was the doyenne of the staff, and for most of those who knew her was so much a part of the College that her sudden and tragic death on March 21st came as a profound shock not only to her present colleagues and pupils, but also to very many others who had passed through the College. She was for many years a member of council and examiner for the Chartered Society, where her specialised knowledge of physical training work and postural problems will be sorely missed. She was only 42 years of age.

ELEANOR HODSON, M.B. Edin.

Dr. Eleanor Hodson, who died on Feb. 26th in Canterbury, had a wide reputation as ophthalmologist and social worker. She was a native of Mickleover, Derbyshire, graduated at the University of Edinburgh as M.B., B.Ch. in 1900, and after serving for a time as house surgeon to the National Eye Hospital, Dublin, went to Calcutta where she practised for some years as a specialist in diseases of the eye. On her return to England she continued to carry on her ophthalmological work, travelled much, and grew interested in many aspects of continental life, while in England she became known as a fine rider to hounds. At the outbreak of war, failing to obtain appointment as a specialist with the British Army, she became attached to the Croix Rouge and during the first period of operations was in charge of various French hospitals. Invalided home in the later phases of the war, she was invited to serve with the R.A.M.C.

(*Continued at foot of opposite page*)

PARLIAMENTARY INTELLIGENCE

NOTES ON CURRENT TOPICS

Nutrition and National Health

THE DEBATE IN THE LORDS

IN the House of Lords on March 18th the Bishop of WINCHESTER asked H.M. Government if in view of widespread malnutrition and the existence of a large milk surplus they would take steps to extend still further the provision already made to supply liquid milk to school-children and to initiate a scheme on similar lines for expectant and nursing mothers and for children under 5. He took his stand largely on the new standard by which to judge nutrition taken by Sir John Orr in his report entitled "Food, Health and Income." There was, he said, plenty of milk available. He would ask the Government the question which had been recently asked in the *Times*: "Why should not some of the milk now poured into factories be poured down human throats?" Against any additional expenditure which might be entailed they must set the saving there would be in respect of hospitals and medical services. In the long run he believed the nation would save rather than lose.

The Earl of RADNOR asked the Government whether they were proposing to take steps to bring the needs of agriculture and the needs of the nation so far as nutrition was concerned more into line. They knew for certain that it was fresh food that the people needed to bring their nutrition up to standard and it was in this country that fresh food could be produced satisfactorily. There was a very wide gap to-day between the price that the producer got and the price the consumer paid. He did not know whether any Government would ever have the courage to have a searching inquiry into the costs of distribution.

Viscount ASTOR spoke of the report, probably the most important of all, of an international commission of experts which had met in London. Being a report of experts it had been ignored by most people. These international experts were unanimous in saying that there was a real problem of malnutrition and that milk was one of the most important diets that should be dealt with. At the Assembly of the League of Nations last September three days were devoted to the discussion of this subject, after which the Assembly passed unanimously a resolution indicating that there ought to be a comprehensive inquiry into (1) nutrition and public health, (2) the repercussions on agriculture and economics of an improved nutrition policy. As a result of that a committee of which he (Lord Astor) was chairman was set up on which sat medical experts, agriculturists, economists, and others. The committee would present an interim report to the Assembly next September. In their interim report his committee would deal only with the Western World; at some future time they would deal with the Far East, where the problem of malnutrition was far more serious than it was in Europe. They hoped very much that as nutrition improved so cheap foods would be allowed to go from countries where they could be produced most cheaply into other countries where from causes of climate or other reasons they could not be produced so cheaply. The price of milk to-day was too high. A great deal could be done to reduce the cost of production. He urged the Government to accept the Bishop of Winchester's proposal. He also hoped that the Government would give a lead in developing a wise nutrition policy.

Lord LUKE said that for the last few months he had had the privilege of serving the Government in their campaign for improving the nutrition of the nation. There had been for several years a Standing Advisory Committee to the Ministry of Health on Nutrition. In 1935 the Government reconstituted the committee with wider terms of reference and Lord Kennet, then Minister of Health, invited him (Lord Luke) to become its chairman. The committee had been asked to find out what food the people of this country were eating and to advise whether it was satisfactory from the health point of view. His committee were fully able to endorse the views now generally held in regard to the consumption of milk. The committee had been able already to produce a report on the nutritive value of milk which had been presented to the Minister of Health and would, he understood, be published very shortly. He hoped that the Government, even if they could not accept the precise terms of the motion, would be able to indicate that they would consider favourably proposals for the increased supply of milk to nursing mothers and children.

THE GOVERNMENT'S REPLY

Viscount GAGE, replying for the Government, said that the problem they had to consider was not whether the people were receiving sufficient food to maintain life, but how far the dietaries of the various classes of the community were adequate to promote and maintain full health. That was a question on which in their present state of knowledge various opinions were no doubt possible. No one would suggest that there was no room for improvement, but they would be viewing this matter in a wholly false light if they did not take into account not merely the high standard of living in this country as compared with other countries, but also the steady improvement which had taken place both in the standards of nutrition and in public health. Some striking figures were given in Sir John Orr's book.

These figures showed the increases in the estimated annual consumption per head of certain foodstuffs and indicated the percentage of consumption in 1934 as compared with the period immediately before the war: Fruit, 188 per cent.; potatoes, 101 per cent.; other vegetables, 164 per cent.; butter, 157 per cent.; eggs, 146 per cent.; cheese, 143 per cent.; meat, 106 per cent.; wheat, 93 per cent.

"It will be seen that, with the exception of wheat, flour and potatoes, there has been a substantial increase in the consumption of most of the principal foods since before the War. The largest increases have been in fruit, fresh vegetables, butter and eggs. In each case the rate of increase has been greater since 1924–28 than in the previous fifteen years.

"These increases in consumption of animal fat, and of fruit and fresh vegetables, are increases in foods of high biological value."

Notwithstanding the industrial depression there had been no halt in the improvement of public health, and for this the health services could claim their share of credit. Of course, it could not be assumed that in all parts of the country and in regard to every class of the community these average figures would apply equally. Nevertheless it could be hardly disputed that the recent social history of this country revealed rising standards of living, improving

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(*Continued from previous page*)

and was appointed anæsthetist and reception officer at Military Hospital No. 1, Canterbury. At the conclusion of hostilities she was decorated by the French Government and continued to take a great interest in the sufferings of the French in the devastated areas. When Canterbury decided to "adopt" the villages of Morval and Lesbœufs Dr. Eleanor Hodson was an energetic worker, while in other philanthropic movements she was a conspicuous figure.

standards of nutrition, and better health accompanied by a remarkable increase in the length of life.

USE OF SURPLUS FOODSTUFFS

The problem to which much attention had been given was that of discovering means to make better use of surplus foodstuffs of high nutritional value in the interests both of public health and the agricultural industry. The problem had been termed one of the marriage of health and agriculture. No doubt the increase which they all desired to see in the consumption of these health-giving substances could readily be attained by drastic reductions in price, but a marriage arranged on these terms might well be a marriage of convenience to health, but it would not be particularly welcome to agriculture. But the Government were fully alive to the supreme importance of nutrition to health and had been giving, with the assistance of the Advisory Committee, very close attention to the newly acquired knowledge on the subject. Fortunately, as the Medical Research Council had pointed out, the essential teachings of modern science could be reduced to a few simple statements:—

"On the dietary side, the broad requirements can be simply stated to the public by saying that much more milk ('safe' milk), cheese, butter, eggs (especially egg-yolk), and vegetables (especially green vegetables) ought to be consumed. In particular, milk ought to be the chief drink for children, and especially in the first years, while bread and other cereals should in these early years be greatly reduced."

THE PRESENT CONSUMPTION OF MILK

It was clear, said Lord Gage, that of all foodstuffs milk was from the nutritional point of view by far the most important. Milk was almost a perfect food. Yet the consumption of liquid milk in this country was abnormally low. It averaged about 3 pints per head per week as compared with 5½ in the United States. He thought they might be assured of the value of the schemes already in existence.

Under the milk-in-schools scheme, which covered all children in grant-earning schools and also adolescents attending junior instruction centres aided by the Ministry of Labour, 22,750,000 gallons were consumed during the first year, on which grant amounting to £401,000 was paid. The number of children participating in the scheme had varied monthly between 2,250,000 and nearly 2,900,000. In recent months the number had averaged about 2,600,000. The Milk (Extension of Temporary Provisions) Bill, which had recently passed through Parliament, would enable the milk-in-schools scheme to be continued for a further 12 months until the end of September, 1937. The Education Act, 1921, enabled local education authorities to provide free meals, including milk, for children who needed this help to enable them to take full advantage of the education provided for them. Children obtaining milk in this manner often received two-thirds of a pint or one pint per day. Since that scheme began the number of children in public elementary schools in England and Wales receiving free milk had risen from 100,000 to 275,000. Finally, under the Maternity and Child Welfare Act, 1918, local authorities in England and Wales were empowered to provide free or cheap milk for expectant and nursing mothers and children under 5 years of age. The provision of free milk under these arrangements depended on the recommendation of the medical officer and the inability of the recipient to pay for the milk. Practically all the 422 maternity and child welfare authorities provided some free milk, or at less than cost. About half the milk supplied was in the form of dried milk. Full information as to the annual consumption of milk under maternity and child welfare schemes was not available, but it had been roughly estimated to be equivalent to 7,000,000 gallons—3,500,000 gallons of liquid milk and 5,000,000 lb. of dried milk.

The Ministers of Health and Agriculture had for some time been examining the possibility of a further extension and encouragement of these milk schemes. The question of consumption was at present under the examination of the Milk Reorganisation Commission, and it would be premature to introduce any new scheme for the provision of milk until the Commission's report had been received.

Workmen's Compensation for Injuries

In the House of Commons on March 20th Mr. MAINWARING moved the second reading of the Employers' Liability Bill. He said that it sought to amend the law in respect of the liability of employers to their workmen for injuries caused to them by the negligence of a fellow workman, and to attach responsibility for such injuries directly to the employer. The Bill was designed to remove an anomaly in the law, the doctrine of common employment, which had been in existence in this country for practically a century. This country alone of the great industrial nations had such a law in operation. An employer was deemed to be responsible for injuries caused in any circumstances by one of his employees to anybody other than his own servants. If an accident resulted in injury to anybody who had common employment in the undertaking then the employer was not responsible.

Mr. A. HENDERSON seconded the motion for the second reading. He said that they were not asking that the workman should be placed in a favoured position, but that he should receive equality of treatment with any other member of the community who was injured as the result of the negligence of another person.

Sir J. WARDLAW MILNE moved the rejection of the Bill. He said that insurance against an indefinite risk of this kind would have to be effected at a high rate. If the Bill became law the temptation to try to prove negligence on the part of a fellow workman would be irresistible, and whereas now much of the compensation paid out was paid without recourse to the Courts, in future there might be protracted cases in the High Court and that would not be for the benefit of the workmen of this country.

Sir D. SOMERVELL, Attorney General, said that the doctrine of common employment was part of the common law of the country. The Bill proposed to alter part of that law. The important point in considering this Bill was that Parliament had affirmed the principle that compensation should be awarded irrespective of negligence. The Bill sought to make the measure of compensation dependent on the proof of negligence. Even assuming that industry could bear this change without detriment to itself, this was, on the whole, a bad use for the money. The effect of the Bill would be in many cases to put a working man in the difficult position of having to make up his mind whether he would risk an action for negligence.

The Bill was rejected by 146 votes to 85.

Midwives Bill

In the House of Commons on March 18th Sir KINGSLEY WOOD, Minister of Health, introduced the Midwives Bill, which was read a first time. An explanatory and financial memorandum, which is prefaced to the Bill, states that the main purpose of the measure is to improve the standard of domiciliary midwifery in England and Wales by establishing an adequate service of salaried midwives. Certain local authorities already exercise to some extent their powers in regard to midwifery under the Maternity and Child Welfare Act, 1918, either by subsidising the midwifery work of local nursing associations or by themselves employing midwives. The present Bill places an obligation on each local supervising authority to secure an adequate service within its area, provides for an Exchequer grant towards the cost of the new service, and deals with other related matters.

Under *Clause 1* it will be the duty of every local supervising authority to secure, whether by making arrange-

ments with welfare councils or voluntary organisations for the employment of midwives as whole-time servants or by itself employing midwives, that an adequate number of salaried midwives is available in its area to attend on women in their own homes as midwives or maternity nurses: the clause provides for the submission to the Minister of proposals for carrying out this duty, after consultation with the local bodies concerned.

Clause 2 provides for the advertisement by each authority of the terms of employment in the new service, which is to be on a whole-time basis, and for certain superannuation matters in relation to midwives so employed.

Under *Clause 3* of the Bill authorities will be required to fix scales of fees for the services of their midwives, when acting as such or as maternity nurses, and to recover in each case the appropriate fee, or, if the financial circumstances of the patient do not permit of the payment of the whole charge, such part, if any, as she or the person legally liable to maintain her can afford.

Clause 4 sets out the provisions governing the grants which it is proposed shall be made by the Exchequer towards the cost of the new service. The grants will range from about 85 per cent. of the additional expenditure in the case of the poorest areas to about 20 per cent. in the case of the richest areas, and will amount in all to about half the cost in each year of the new service.

Clause 5 of the Bill provides that a midwife who is not appointed by an authority as a salaried midwife and who agrees to cease practice and to surrender her certificate shall receive compensation based on her emoluments for the last three years, and that any midwife who is required to surrender her certificate by reason of age or infirmity shall receive compensation based on her emoluments for the last five years.

The remaining clauses contain provisions for preventing unqualified persons from practising as nurses in maternity cases, for securing the periodical attendance of certified midwives at courses of instruction to be provided by authorities, and for enabling authorities to defray certain expenses incurred by them under previous Midwives Acts.

In the House of Lords on Tuesday, March 24th, Viscount GAGE introduced a Bill to consolidate and amend certain enactments relating to public health. The Bill was read a first time.

HOUSE OF COMMONS

WEDNESDAY, MARCH 18TH

Quality of Margarine Supplied in Royal Air Force

Mr. LEACH asked the Under-Secretary of State for Air if the low-priced and inferior quality of margarine supplied to the Air Force was of the type to which vitamins A and D had been artificially added or was it of the non-vitamin containing variety.—Sir P. SASSOON replied: The margarine supplied to apprentices and boys in the Royal Air Force is vitaminised, but not that supplied to airmen.

Mr. LEACH: Can the right hon. gentleman say whether the insertion of these vitamins in margarine can actually be performed with success; and does he know that butter contains both these vitamins?

Sir P. SASSOON: I believe medical authorities consider that vitaminised margarine is equal if not superior to butter because the vitamin content of butter varies according to the seasons of the year.

Gastric Disorders Among Omnibus Men

Mr. SHORT asked the Lord President of the Council if he would say what progress the Industrial Health Research Board of the Medical Research Council had made respecting the investigation of the cause of gastric disorders among omnibus men.—Capt. MARGESSON (Parliamentary Secretary to the Treasury) replied: I am informed that the investigation is being actively pursued, but that it has only recently begun and is still in an early stage. It will necessarily take some time to collect reliable statistics to show whether an excessive incidence of gastric disease is, in fact, associated with this occupation. If an affirmative answer is obtained it is proposed to extend the inquiry to a study of possible causes.

Temperature and Humidity Conditions in Hospitals and Schools

Mr. MARKHAM asked the Minister of Health whether any inquiry was proceeding in this country at the moment into the question of temperature and humidity conditions in schools, hospitals, &c.; and, if not, whether he would take steps to institute such inquiries.—Sir KINGSLEY WOOD replied: I understand that inquiries relating to questions of warmth and comfort in buildings are being carried out by an inter-departmental committee of the Medical Research Council and the Department of Scientific and Industrial Research, and that a further report will shortly be issued by the Council. In these circumstances I do not at present think it necessary to institute further inquiries with special reference to schools or hospitals.

THURSDAY, MARCH 19TH

Medical Treatment in Training Centres

Miss WARD asked the Minister of Labour if he could yet inform the House what steps he proposed to take to provide medical treatment for young men.—Lieut.-Colonel MUIRHEAD (Parliamentary Secretary to the Ministry of Labour) replied: Arrangements are being made to provide treatment in appropriate cases for young men in the special areas of the ages of 18–24 inclusive who are willing to attend a training centre, but who are at the moment prevented from doing so by reason of remediable defects.

Miss WARD: Can my hon. friend say what the arrangements are?

Lieut.-Colonel MUIRHEAD: The arrangements are being undertaken, but they are not yet completed. I cannot give any date for their completion, but they are being pressed on as quickly as possible.

Instruction on the Dangers of Alcohol

Mr. PALING asked the President of the Board of Education whether any steps had been taken by the Board to carry out the recommendation of the Royal Commission on Licensing, paragraph 699, that His Majesty's inspectors should inquire as to the extent to which instruction on the dangers of alcohol was carried out in the schools they visited; and if he could present any return or report showing the results of the inquiries made.—Mr. OLIVER STANLEY replied: The Board's "Handbook of Suggestions on Health Education" contains a chapter on the hygiene of food and drink, which was revised after the publication of the report of the Royal Commission on Licensing, and the Board consider that a knowledge of its contents should be regarded as part of the necessary equipment of every teacher. H.M. inspectors have been instructed to pay particular attention to, and to report on, the health instruction given in schools, but I am unable to furnish a report such as the hon. Member desires.

Special Schools for Mentally Defective Children

Sir FRANCIS FREMANTLE asked the President of the Board of Education if he would say for how many children accommodation was available in special schools for mentally defective children; and for how many accommodation was available 25 years ago.—Mr. OLIVER STANLEY replied: There is accommodation available in special schools for 16,562 mentally defective children as compared with accommodation available in 1911 for 11,854.

Sir F. FREMANTLE: Does the right hon. gentleman think that is satisfactory progress considering the importance of the problem?

Mr. OLIVER STANLEY: In a recent circular I issued I pointed out that there was a need for better residential accommodation for these children in certain areas, and I urged local authorities to make progress in the matter.

Sir FRANCIS FREMANTLE asked the President of the Board of Education if he would arrange for the notification of defective children on leaving school to the mental deficiency authority.—Mr. OLIVER STANLEY replied: Provision is made in Article 4 of the Mental Deficiency

(Notification of Children) Regulations for the notification of mentally defective children due to leave special schools on or before attaining the age of 16. There is no power whereby local education authorities can notify children leaving other schools, but the Board have suggested that such children could be informally brought to the notice of the mental deficiency authorities for friendly supervision on a voluntary basis.

Sir F. FREMANTLE: Is the right hon. gentleman looking after this to see if it is carried out properly because the information generally is that it is not carried out?

Mr. OLIVER STANLEY: The whole question of closer coöperation is now under consideration by the local authorities.

Small Traders and National Health Insurance

Mr. ARTHUR HENDERSON asked the Minister of Health whether he proposed to introduce legislation to allow shopkeepers to become voluntary contributors under the National Health Insurance Acts for the purpose of qualifying for the receipt of benefits, including medical, sickness, and disablement benefits.—Sir KINGSLEY WOOD replied: The answer is in the negative. The new scheme which the Government has announced its intention of introducing will be limited to pensions insurance. The Government feel that the success of the new scheme would be jeopardised by the inclusion of health insurance, because the contribution required to provide the combined benefits would be so substantial as to make the scheme unacceptable to many persons who are anxious to secure the pensions benefits. I would remind the hon. Member that under the National Insurance Act, 1911, shopkeepers and other persons working on their own account had the opportunity of becoming voluntary contributors for health insurance purposes, but the option was withdrawn by the Act of 1918 because of the meagre response to the offer.

Spahlinger Treatment for Tuberculosis

Sir FRANCIS FREMANTLE asked the Minister of Agriculture if adequate experiments were being made in this country to check those in Northern Ireland on the Spahlinger vaccine for the prevention of tuberculosis in cattle; how long these experiments would take; and whether, if it be proved successful, he would take steps to secure its general adoption.—Mr. ELLIOT replied: I am in close touch with the work that has been and is being carried out in Northern Ireland in connexion with the Spahlinger vaccine. The question of conducting tests with the vaccine in this country is under consideration. I am, however, not yet in a position to make a statement as to the scope or duration of any experimental work which may be undertaken.

MONDAY, MARCH 23RD

Small-pox in India

Mr. LEACH asked the Under-Secretary of State for India whether he had received any information with regard to small-pox outbreaks in India; and whether the outbreaks this year had been heavier than usual at this period.—Mr. BUTLER replied: There has recently been an acute epidemic of small-pox in Bengal. Complete up-to-date figures for the Province as a whole are not yet available, but in Calcutta 1558 deaths from small-pox have occurred this year up to March 7th. This is greater than the average of recent years, but the disease comes in waves at irregular intervals.

TUESDAY, MARCH 24TH

Cerebro-spinal Fever in Army Camps

Mr. DAY asked the Secretary of State for War to state the number of cases of cerebro-spinal fever reported and admitted to hospital at Aldershot and/or Catterick during the previous 12 months; and whether there had been any reports from other camps in Great Britain.—Mr. DUFF COOPER replied: The number of cases of cerebro-spinal fever for 1935 were: Aldershot, 7; Catterick, 2. In addition there were 14 cases from various stations throughout Great Britain, making a total of 23. The number of cases from Jan. 1st, 1936, to date are: Aldershot, 1; Catterick, 4. In addition there were 7 cases at Woolwich, 2 at Chatham, and 1 at Windsor, making a total of 15.

Puerperal Fever in Derbyshire

Mr. HOLLAND asked the Minister of Health how many cases of puerperal fever had occurred in Derbyshire during the past three months; how many of such cases originated in maternity institutions; whether the source of the infection had been traced; and with what results.—Mr. SHAKESPEARE (Parliamentary Secretary to the Ministry of Health) replied: Thirteen cases of puerperal fever were notified in Derbyshire during the 13 weeks ended March 14th. One case occurred in one of the maternity institutions which are provided or subsidised by local authorities and which are, therefore, required to report to my right hon. friend. There were also 11 cases of the condition known as puerperal pyrexia in the same institution during that period. Investigation showed that the source of infection could probably be traced to a throat infection in a member of the staff, and the institution was temporarily closed and the premises disinfected.

MEDICAL SICKNESS, ANNUITY AND LIFE ASSURANCE SOCIETY

The annual report announces that 1936 is a bonus year for members of this society, which is the only insurance company paying a reversionary bonus on its sickness and accident policies as well as on its life policies. The surplus available for distribution depends on the profits of the sickness fund and therefore varies according to the society's experience; in 1932, for example, the bonus was 12*s.* for each guinea per week insured on each premium paid in the preceding five years, while in 1927 the figure was 15*s.* per guinea. The directors take an optimistic view of the prospects for 1936, as the present experience seems to be favourable. Prospective members of the society are advised that it is open only to the medical and dental professions; that it is conducted on a "mutual profit" basis; that, if desired, combined policies are issued embodying both life and sickness assurance; that loans for the purchase of practices and house property are offered; and that pension policies are available for insurance practitioners and members of the British Medical Association. In presenting the report of the 51st year of the society the directors speak of continued expansion. The total funds have increased by £147,526 to £1,239,639. The premium income of the life assurance fund amounted to £101,268, and the rate of interest earned on this fund was £4 6*s.* 3*d.* per cent. after deduction of tax. The new annual premiums again reached a record figure, amounting to £10,071; the payments for sickness claims increased slightly to £53,494. The total premium income increased to £202,460, and the expenses of administration were reduced by 1·8 per cent. of last year's figures to £19,685; this is 9·7 per cent. of the total premium income. The growth of the society in the last few years has made it necessary to secure larger offices; fortunately it was possible to find the accommodation in the same building in which the society has had its offices since 1914, at 300, High Holborn, London, W.C.1.

RHEUMATIC CLINIC FOR ABERDEEN.—The provision of a clinic for the treatment of rheumatic diseases at Aberdeen is being considered. It is thought the Royal Infirmary buildings at Woolmanhill which will shortly become vacant might be reconstructed for this purpose.

CARDIFF ROYAL INFIRMARY.—There has been a gradual increase in expenditure at this hospital amounting to between £4000 and £5000 a year, and as there is no prospect of reduction, a regular additional income of £5000 a year must be obtained. The chairman of the finance committee has suggested that the weekly contributions from workmen should be raised from 2*d.* to 3*d.* a week.

MEDICAL NEWS

University of Oxford

On May 5th in convocation it will be proposed to confer the honorary degree of D.Sc. on Sir Cuthbert Wallace, P.R.C.S., Sir Walter Langdon-Brown, Dr. Robert Hutchison, Prof. Charles Singer, Sir Henry Dale, F.R.S., and Sir George Newman. The degrees will probably be conferred when the British Medical Association meets at Oxford this summer.

A Radcliffe travelling fellowship has been awarded to Dr. A. P. Meiklejohn, Robinson senior scholar of Oriel College.

University of Liverpool

At recent examinations the following candidates were successful :—

D.P.H.

Part I.—J. D. Bryan, W. N. M. Mason, T. H. Pierce, F. Pygott, H. R. Shone, Edna L. Smart, B. A. Taylor, Mary M. Thomson, and T. P. Twomey.

D.T.M.

W. Barnetson, A. Boules, D. L. Cran, N. G. Gandhi, R. G. Ghoshal, A. G. Hiremath, M. T. Ismail, B. B. Mukerjee, W. Murray, M. S. Rao, and J. G. Slimon.

D.T.H.

W. Crawford, K. O'Toole, S. K. Ting, and T. P. Tu.

Dr. R. G. Ghoshal has been recommended for the Milne medal.

University of Leeds

Mr. J. C. Gillies has been appointed honorary demonstrator in anatomy, and Mr. D. J. Cork lecturer in dental pathology and bacteriology.

At recent examinations the following candidates were successful :—

M.D.

Bessie Brown and W. H. Tod.

CH.M.

P. R. Allison.

FINAL EXAMINATION FOR M.B., CH.B.

Part I.—N. Baster, Joan M. Bateson, G. R. Bedford, Rosemarie Blackwood, H. Cohen, A. A. Driver, R. W. Ellis, K. M. Fox, V. P. Geoghegan, I. R. Gray, G. W. Green, G. W. V. Greig, T. Hardy, Gwyneth M. Hosking, S. Lask, R. F. Lawrence, S. Levy, N. Livingstone, Agnes M. Mitchell, R. B. Raj, F. P. Raper, J. A. Rhind, A. H. Rhodes, Joyce M. Rhodes, Phyllis M. Richards, I. D. Riley, G. B. Robinson, H. Silverman, C. L. Summerfield, J. C. T. Sykes, D. Taverner, H. Thistlethwaite, L. G. Topham, Mary Townend, Leila M. Wainman, J. W. Walker, F. J. D. Webster, and F. W. Wigglesworth.

Part II.—G. N. Blackburn, Olive M. Callow, Marie H. Calverley, G. Clarke, J. C. Coates, W. Davidson, W. G. France, W. Hobson, J. Holden, R. L. Lamming, D. M. Leiberman, S. Mattison, W. S. A. Oakes, G. Quayle, O. Scarborough, J. P. Senior, Winnie Shaw, C. E. Stuart, E. H. Tomlin, C. W. Ward, and H. L. L. Wilson.

Part III.—R. L. Lamming (with first class honours); J. C. Coates and W. Hobson (with second class honours); G. N. Blackburn, Olive M. Callow, Marie H. Calverley, G. Clarke, W. Davisdon, W. G. France, J. Holden, D. M. Leiberman, S. Mattison, W. S. A. Oakes, G. Quayle, O. Scarborough, Winnie Shaw, C. E. Stuart, E. H. Tomlin, C. W. Ward, and H. L. L. Wilson.

FINAL EXAMINATION FOR L.D.S.

H. C. Brewerton, O. B. Clarke, T. W. Frost, and W. Pickup.

D.P.M.

A. D. D. Broughton and E. Smith.

D.P.H.

J. C. G. Anderton, E. L. Brittain, and J. W. Whitworth.

University of Manchester

Mr. John Morley, lecturer in systematic surgery in the University, has been appointed to the chair of surgery in succession to Prof. E. D. Telford who will retire in June.

Mr. Morley, on leaving Bishop Stortford College, entered the University of Manchester and graduated M.B. with first-class honours in 1908. He obtained the degree of Ch.M. in 1911 and became F.R.C.S. Eng. in the same year. During his course he gained many awards, including the graduate scholarship in medicine, the Bradley scholarship in clinical surgery, the Tom Jones exhibition in anatomy and the Tom Jones surgical scholarship, and the Ashby research scholarship in the diseases of children. He held a demonstratorship in anatomy in the University from 1910 to 1911 and was lecturer in clinical anatomy from 1912 to 1920 when he was appointed a lecturer in applied anatomy. This appointment continued until, in 1930, he took up his present position. During the war he held the rank of captain in the R.A.M.C. (T.F.), and was awarded the Croix de Chevalier of the Legion of Honour for services in Gallipoli. Mr. Morley is consulting surgeon to Ancoats Hospital, assistant surgeon to the Manchester Royal Infirmary, and a consulting surgeon for children to St. Mary's Hospitals, Manchester. His best known work is his book on "Abdominal Pain," published in 1931.

University of Sheffield

At recent examinations the following candidates were successful :—

M.D.

P. B. L. Potter.

FINAL EXAMINATION FOR M.B., CH.B.

Parts II. and III.—R. T. Gaunt, J. R. Grimoldby (with second class honours); E. D. Belbin, H. A. Cole, J. L. Dales, P. M. Inman, S. Miles, E. L. M. Millar, and Cyril South.

Scholarships for Sons of Medical Men

Sir Milsom Rees scholarships of £100 each to Port Regis Preparatory School, Broadstairs, have been awarded to E. H. B. Smith, son of Major E. C. A. Smith, I.M.S., and to J. M. H. Dickson, son of Dr. W. S. Dickson.

Medical Art Society

The second exhibition of this society, which was founded last year, will be held in July. It is proposed that the members dine together before visiting the exhibition. A certain number of frames of stock sizes will be available for the exhibits of country members. Further information may be had from the hon. secretary, Prof. C. A. Pannett, St. Mary's Hospital, London, W.2. The president is Sir Leonard Hill, F.R.S.

General Medical Council

At the meeting of the executive committee held on Feb. 24th it was announced that the following names erased from the Medical Register under Section 14 of the Medical Act, 1858, had now been restored:

Bennett, Thomas	Kinnear, Joseph
Browne, Patrick F.	Mackenzie, Andrew H.
Fraser, Patrick	Murphy, John K.
Horsley, Lancelot	O'Brien, Catherine M.
Jones, Lewis	Weston, Alfred W.

A reported amendment of the 1928 Act in the Union of South Africa enables holders of New Zealand medical degrees to be registered in the Union, and revokes the right of holders of the M.D. of Royal Universities of Italy. A new regulation by the Saudi Government forbids any doctor, dentist, veterinary surgeon, dental operator, or accoucheuse to practise in the Kingdom of Saudi unless registered under specific conditions by the public health department.

National Ophthalmic Treatment Board

This board has completed a film called "Do You See?" which illustrates in story form the need of watchfulness against eyestrain, and emphasises the danger of receiving eye treatment from anyone but a qualified eye specialist. One sequence of the film deals with the history of spectacles and another shows the activities of the National Eye Service centres which the Board has established in coöperation with the British Medical Association. These centres provide for examination of the eyes of persons of limited means by medical eye specialists at a nominal fee. The address of the Board is 1, High-street, Marylebone, W.1.

The Grenfell Association

Dr. H. L. Paddon gave an address, entitled Twenty-one Years with Sir Wilfrid Grenfell in Labrador, at a meeting on March 18th of the Grenfell Association of Great Britain and Ireland, at which Lord Horder presided. He said that Grenfell found pathetic relics of two races, Eskimos and Indians, which were suffering grieviously from contact with white men. He described the havoc played by epidemics of small-pox, influenza, scarlet fever, and measles. The tragedy of the native races could not be stayed, but there still remained the white settlers and mixed stock, and Labrador could be made an industrial asset of the Empire, though the country's resources were still undeveloped. Tuberculosis and nutritional disease were disappearing in the districts round the hospitals and medical centres. Lord Horder said there was no form of human activity for which he would like to appeal more strongly than for the Grenfell Association. Mr. Vincent Massey, High Commissioner for Canada, ascribed to Grenfell the honour of having removed the reproach often applied to Labrador "The land that God gave Cain."

Grading of Milk

Sir Kingsley Wood, the Minister of Health, having considered representations made to him upon the Draft Milk (Special Designations) Order, 1936, has decided to make some modifications in the Order and to postpone the date of operation till June 1st.

Laryngo-phoniatry

Ten lectures on this subject will be given from May 11th to 16th at the Hôpital Bellan, 7, rue du Texel, Paris XIV. Further information may be had from Dr. Jean Tarneaud, 27, Avenue de la Grande Armée, Paris XVI.

London Hospital

Sir William Goschen, chairman of this hospital, announces that of the £80,000 required for extensions only £13,674 has so far been subscribed. It is becoming increasingly difficult to carry on the work of the institution, and as a result of lean and difficult years in the past the loan account stands at £81,000.

Royal Waterloo Hospital, London

This hospital's income last year rose from £24,005 to £24,997, but the weekly cost of each in-patient also rose, from £3 8*s*. 3¼*d*. to £3 10*s*. 10¼*d*. The out-patient department is very much congested and it has become necessary to extend the building.

Westminster Hospital

At the end of 1935 over £178,000 had been given or promised to the rebuilding fund of this hospital, and during the last three months promises of sums amounting to a further £12,500 have been received. The sum of £25,000 is needed before the new medical school building, which is badly needed, can be completed.

Clinic for Endocrine Disorders

A new out-patient department for the treatment of endocrine disorders is to be opened at Guy's Hospital, London. It will be regarded purely as a reference department, and for the present there will be only one session weekly. Dr. P. M. F. Bishop, as honorary clinical endocrinologist, will be in charge of the clinic.

Harvey's Statue at Folkestone

On Wednesday next, being the anniversary of his birth in Folkestone, the statue of William Harvey on the Leas will be unveiled in a form more worthy of his birthplace. The statue, 30 ft. in height, cast in bronze, on a granite plinth and pedestal, has been decolorised since its erection in 1881 by the salt air to a mottled green. The inscription on the base, which has long been hardly discernible, is being renovated for all who will to read :—

WILLIAM HARVEY.
The Discoverer of the Circulation of the Blood.
Born in Folkestone April 1, 1578.
Died in London June 3, 1657.
Buried at Hempstead, Essex.

Harvey's memory is also recalled in Folkestone by the stained-glass window in the parish church, and by the grammar school founded by one of his relations.

Congress on Hepatic Insufficiency

An International Congress on Hepatic Insufficiency will be held at Vichy from Sept. 16th to 18th immediately after the International Congress on Gastroenterology which is taking place in Paris from Sept. 13th to 15th. The congress at Vichy will meet under the presidency of Prof. Maurice Loeper (Paris), and the subjects for discussion have been arranged in two sections. Prof. Noel Fiessinger (Paris) will preside over the medicine and biology section, and among those who will contribute to the discussions are Dr. R. Debré, Dr. Gilbrin, Dr. Semelaigne, Prof. Binet, and Prof. Lemaire (Paris), Dr. Olmer (Marseilles), Dr. Erich Urbach (Vienna), Dr. A. Parhon (Bucharest), and Dr. Hamilton Fairley (London). Prof. Mauriac (Bordeaux) is to preside over the therapy section, and the speakers will include Prof. Brulé, Prof. M. Villaret, Prof. L. Justin-Besançon, Dr. R. Cachera, and Dr. R. Fauvert (Paris), Prof. Piery and Dr. Milhaud (Lyons), Dr. De Grailly (Bordeaux), Dr. F. Gallart-Mones (Barcelona), Prof. B. Pribram (Berlin), Prof. P. Duval, Dr. J. C. Roux, and Dr. Goiffon (Paris). Dr. J. Aimard is the general secretary of the congress and may be addressed at 24 Boulevard des Capucines, Paris, IX•

Princess Alice Hospital, Eastbourne

The Marchioness of Hartington opened the nurses' home extension at this hospital on March 23rd.

London Homœopathic Hospital

It is proposed to provide an enlarged casualty department at this hospital for the reception and treatment of the increasing number of accident and ambulance cases.

Birmingham Children's Hospital

A babies' block is to be erected at this hospital and a public appeal made to pay for the building and equipment. Mr. Peter Bennett has promised to give £10,000 under a seven years' deed of covenant.

Research Fellowship in Medicine

The Council of the Royal Society invite applications for the E. Alan Johnston and Lawrence research fellowship in medicine which is tenable in any hospital or medical school in the British Isles. The fellow is elected for two years and receives an annual stipend of £700. Particulars will be found in our advertisement columns.

Bath Mineral Water Hospital

Mr. Sidney Robinson has offered £35,000 for the building of the projected new hospital on a site which has already been cleared. Last year he gave £5000 to meet the cost of the additional nurses' quarters, and his earlier gifts include £3000 for the erection of a new ward and £1500 to facilitate the organisation of a national research laboratory. Mr. Robinson makes his offer on the condition that building shall begin within two years.

Incorporated Society of Chiropodists

The annual dinner of the society was held on Saturday evening last at the Trocadero, the president of the society, Mr. John H. Hanby, welcoming at the reception over 200 members and their guests. The toast of the evening was proposed by Mr. Norman Lake, senior surgeon to Charing Cross Hospital, who told the story of the early struggles of the society, to which the chairman replied, recalling the steady and practical advance of recent activities, and dwelling on the good work done at the Foot Hospital. The toast of the medical profession was proposed by Sir Henry McMahon and acknowledged by Mr. W. H. Ogilvie and Dr. A. W. Oxford. Thereafter a large number of the company danced.

St. Mark's Hospital, London

The annual general meeting of the governors of this hospital was held on March 19th. Sir Percy Vincent, the Lord Mayor, presided, and, in proposing the adoption of the report of the committee of management, said that 1935, the centenary year of the hospital, had been one of great activity in all departments. The number of patients admitted to the wards had been 1129, which was the highest recorded. The income had exceeded the expenditure, but the surplus was accounted for by legacies, which could not be regarded as normal income. After a hundred years of humanitarian work in the City of London St. Mark's needed £60,000 to meet its increased responsibilities. An appeal for that sum had been launched in 1934, and £8745 had been received in response. It was proposed to build a modern nurses' home, to increase the bed complement, to provide a self-contained paying patients' block, to install a second operating theatre, and to improve the cancer research, X ray, and out-patient departments. The hospital records showed the importance of early treatment, but, owing to lack of accommodation, hundreds of cases had to be turned away, with disastrous results. The need had become so urgent that plans were on foot to begin work on the extensions, and it was hoped that the foundation-stone of the new nurses' home would be laid during the present year. The hospital was doing a noble and useful work, and he hoped it would receive the support from the public which it undoubtedly deserved.

Mr. Lionel Norbury, the senior honorary surgeon of the hospital, said that there were 201 people on the waiting-list at the present moment, and the number seldom fell below that. A considerable proportion of those 201 people were cancer patients, for whom early treatment was of the utmost importance, and it was therefore imperative that the size of the hospital should be increased at the earliest possible moment.

Medical Diary

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.
WEDNESDAY, April 1st.
History of Medicine. 5 P.M. Mr. F. N. Doubleday: John Keats, Poet and Doctor.
Surgery. 2 P.M. (King's College Hospital, Denmark Hill, S.E.), Operations by Mr. C. P. G. Wakeley, Mr. J. Everidge, and Mr. H. C. Edwards. Cases will be shown, and there will be a Demonstration of Microscopic Sections, including Adenolymphomata of the Salivary Glands. 4.30 P.M., Dr. R. D. Lawrence: Sugar Metabolism in Hyperthyroidism. Mr. H. C. Edwards: The Value and Technique of Gastroscopy. Dr. R. A. McCance: Sodium Deficiency in Surgical Practice.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.
FRIDAY, April 3rd.—8.30 P.M. (De Vere Hotel, Kensington), Prof. Hey Groves and Mr. Sangster Simmons: Treatment of Fractures.

WEST KENT MEDICO-CHIRURGICAL SOCIETY.
FRIDAY, April 3rd.—8.45 P.M. (Miller General Hospital, Greenwich), Dr. F. Hudson Evans, Dr. L. W. Bain, Dr. Edward Glover, and Dr. S. S. Lindsay: That the Neurotic Patient should be Treated by His Own Family Doctor.

HARVEIAN SOCIETY.
THURSDAY, April 2nd.—8.30 P.M. (Manson House, 26, Portland-place, W.), Dr. W. E. Chiesman and Dr. G. de Bec Turtle: Hæmatemesis.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

UNIVERSITY OF BIRMINGHAM.
TUESDAY, March 31st.—3.30 P.M. (General Hospital), Dr. B. C. Tate: Demonstration of Skin Diseases.
FRIDAY, April 3rd (Queen's Hospital), Prof. W. Gemmill: Demonstration of Surgical Cases.

ROYAL INSTITUTION, 21, Albemarle-street, W.
TUESDAY, March 31st.—5.15 P.M., Prof. Edward Mellanby, F.R.S.: Drug-like Actions of Some Foods.

INSTITUTE OF HYGIENE, 28, Portland-place, W.
WEDNESDAY, April 1st.—3.30 P.M., Dr. R. Fortescue Fox: Arthritis in Women.

CHADWICK LECTURE.
THURSDAY, April 2nd.—8.15 P.M. (Royal Institute of British Architects, 68, Portland-place, W.), Mr. Lionel Pearson: Modern Hospital Construction.

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane-road, W.
MONDAY, March 30th.—11.30 A.M., Prof. F. R. Fraser: Tuberculosis Complicating Pregnancy.
TUESDAY.—2.30 P.M., Dr. King: Hepatic Function and Jaundice.
WEDNESDAY, April 1st.—Noon, Clinical and pathological conference (medical). 2.30 P.M., Clinical and pathological conference (surgical). 3.30 P.M., Mr. Aleck Bourne: Disproportion and Difficult Labour.
THURSDAY.—2.15 P.M., Dr. Duncan White: Radiological Demonstration. 3 P.M., Dr. Chassar Moir: Operative Obstetrics.
FRIDAY.—Noon, Dr. A. A. Davis: Gynæcological Pathology. 3 P.M., Dr. Alan Moncrieff: Hygiene of the New-born Child. 5 P.M., Sir James Walton: Surgical Aspects of Dyspepsia.
Daily, 10 A.M. to 4 P.M., medical clinics, surgical clinics or operations, obstetric and gynæcological clinics or operations.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
MONDAY, March 30th, to SUNDAY, April 5th.—INFANTS HOSPITAL, Vincent-square, S.W. All-day course in infants' diseases. Mon., Wed., and Fri., 8 P.M., primary F.R.C.S. course (anatomy and physiology).—NATIONAL TEMPERANCE HOSPITAL, Hampstead-road, N.W. Wed., Dr. Reginald Lightwood: Recent Views on Anæmia in Childhood. Fri., 8.30 P.M., Dr. Lightwood: Rational Prescribing for Children. Sat. and Sun., all-day course in general medicine and surgery.—WEST END HOSPITAL FOR NERVOUS DISEASES, Gloucester-gate, Regent's Park. Tues., 8.30 P.M., Fundus Oculi Demonstration by Mr. Lindsay Rea for M.R.C.P. Candidates. Courses are open only to members of the Fellowship.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.
WEDNESDAY, April 1st.—2 P.M., Dr. Bertram Shires: Radiography of the Chest. 3 P.M., Dr. G. H. Newns: Pulmonary Diseases. Morbid Anatomy Demonstration.
Out-patient Clinics daily at 10 A.M. and ward visits at 2 P.M.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Westmoreland-street, W.
TUESDAY, March 31st.—5.30 P.M., Dr. B. T. Parsons-Smith: Œdema and its Treatment.

MANCHESTER ROYAL INFIRMARY.
TUESDAY, March 31st.—4.15 P.M., Dr. A. Ramsbottom: The Treatment of Peptic Ulcer with Special Reference to Larostidin.
FRIDAY, April 3rd.—4.15 P.M., Dr. F. R. Ferguson: Demonstration of Neurological Cases.

ANCOATS HOSPITAL, Manchester.
THURSDAY, April 2nd.—4.15 P.M., Clinical Meeting.

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION.
WEDNESDAY, April 1st.—4.15 P.M. (Royal Samaritan Hospital for Women), Dr. John Gardner: Prolapse.

Appointments

ALLEN, H. W., D.M. Oxon., D.P.H., has been appointed Medical Registrar at the Prince of Wales's General Hospital, London.

BADENOCH, A. W., M.D. Aberd., F.R.C.S. Eng., Surgical Registrar at the Metropolitan Hospital, London.

BLAND, J. O. W., M.D. Camb., Senior Demonstrator of Bacteriology at St. Bartholomew's Hospital, London.

BOYCOTT, J. A., B.M. Oxon., Assistant Bacteriologist to St. George's Hospital, London.

BREWER, H. F., M.D. Camb., Clinical Pathologist to St. Bartholomew's Hospital, London.

CLARKE, J. H., M.D., D.P.H., Medical Officer of Health for the County of Lincoln (Kesteven).

CRUICKSHANK, ALEXANDER, M.B. Aberd., F.R.C.S. Eng., Surgical Registrar at the Prince of Wales's General Hospital, London.

CUTHBERT, J. A., M.B. Edin., D.P.H., Assistant Medical Officer of Health for Dundee.

DEVLIN, W. L., M.B. Belf., D.P.H., Assistant Medical Officer for Rhondda.

REBURN, CYRIL, M.R.C.S. Eng., Second Assistant Pathologist at the Royal Sussex County Hospital, Brighton.

ROUGHEAD, J. A., M.B. Glasg., D.P.H., Medical Officer of Health to the Burton Latimer, Desborough, and Rothwell Urban Councils, the Kettering Rural District Council, and Assistant Medical Officer to the Northants County Council.

TODD, T. F., M.S. Lond., F.R.C.S. Eng., M.C.O.G., Hon. Assistant Gynæcologist to the Royal Hospital, Salford.

WINTERTON, W. R., M.B. Camb., F.R.C.S. Eng., M.C.O.G., Assistant Surgeon to the Hospital for Women, Soho-square, London.

Sheffield Royal Hospital.—The appointment of the following Clinical Assistants is announced:—
LUDLAM, G. B., M.B. Edin., D.L.O., Ear, Nose and Throat Department;
FAULKNER, S. H., M.D. Belf., M.R.C.P.I., D.O.M.S., Ophthalmic Department; and
KEMP, F. H., M.B. Birm., X Ray Department.

Certifying Surgeons under the Factory and Workshop Acts: Dr. J. T. MOFFAT (Coggeshall District, Essex); Dr. T. H. MCLEOD (North Walsham District, Norfolk).

Medical Referee under the Workmen's Compensation Act, 1925: C. W. GRAHAM, M.B., F.R.C.S., of Edinburgh, for all Sheriff Court Districts at present comprised in the Sheriffdoms of Fife and Kinross; the Lothians and Peebles; and Stirling, Dumbarton, and Clackmannan; with a view to his being employed in ophthalmic cases.

Births, Marriages, and Deaths

BIRTHS

ADAM.—On March 16th, the wife of Dr. W. Blane Adam, of Crowborough, of a daughter.

BYROM.—On March 19th, at Muswell Hill, Kathleen, wife of F. B. Byrom, a daughter.

CONYERS.—On March 16th, at Sutherland-avenue, W., the wife of J. H. Conyers, F.R.C.S. Eng., of a son.

DAVENPORT.—On March 17th, at Welbeck-street, the wife of Robert Davenport, F.R.C.S. Eng., of twin sons.

DAVIDSON.—On March 13th, in London, the wife of Dr. James Davidson, Brampton-grove, N.W., of a daughter.

DAVIES.—On March 17th, at Walmer, the wife of Dr. D. A. Davies, of a daughter.

DAY.—On March 14th, at Norwich, the wife of Dr. George H. Day, of a son.

JACKSON.—On March 19th, to Marjorie (née Kerr), wife of H. B. Jackson, M.B., M.R.C.P. London, of Sheringham—a daughter.

MARKS.—On March 20th, the wife of Dudley P. Marks, M.B. Camb., F.R.C.S. Eng., of Stratford-on-Avon, of a daughter.

PAGAN.—On March 15th, at Southampton, the wife of Dr. A. T. Pagan, of a son.

SPICER.—On March 14th, at Southsea, the wife of Captain W. R. C. Spicer, R.A.M.C., of a son.

MARRIAGES

KNOX—CRUST.—On March 21st, at St. Bartholomew the Great, Robert Knox, M.D. Lond., of Cambridge, to Lynda Crust, of Miningsby.

DEATHS

BOWER.—On March 19th, at Avenue Mansions, N.W.3, William Bower, M.B. Camb., late of Ware and Hendon.

DODWELL.—On March 18th, at Albert Bridge-road, S.W., Philip Rashleigh Dodwell, M.D. Lond., in his 73rd year.

EAMES.—On March 13th, at Derby, Ernest Victor Eames, L.R.C.P. Edin., late of Heanor, Derbyshire.

HANSON.—On March 21st, in London, in motor-car accident, Dorothy Mable Hanson, M.B. Liverp.

LOW.—On March 21st, at Singapore, consequent on a fall, John Meredith Low, M.R.C.S. Eng., Capt., R.A.M.C.

SHADWELL.—On March 21st, at Richmond, Arthur Shadwell, M.D. Oxon., F.R.C.P. Lond., aged 81.

TWEEDIE.—On March 18th, Alexander Robert Tweedie, F.R.C.S. Eng., late Colonel R.A.M.C., T., retd., of Nottingham.

WHITAKER.—On March 22nd, suddenly, at Farncombe, Surrey, Sir James Smith Whitaker, M.R.C.S. Eng., late Senior Medical Officer to the Ministry of Health, in his 71st year.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

NOTES, COMMENTS, AND ABSTRACTS

THE ART OF MEDICINE[1]

By CHRISTOPHER HOWARD, M.R.C.S.

EARLY DIAGNOSIS: TREATMENT OF PNEUMONIA

To make an early diagnosis is often to win half the battle in a case of serious illness, for as a rule treatment only fails because it is not administered sufficiently soon. Take, for instance, early pneumonia. In this disease there may be no chest signs to commence with, except widespread pain, but there are, I think, three signs which, if present, enable one to make a definite diagnosis and so to free one's mind of the incubus of the unknown. The first is the working of the nostrils, which is present even when there may be no very obvious respiratory embarrassment; and it is a sign which the best of physicians I have met, the late Dr. Ogle, continually impressed upon his clerks. The second is a pungent burning skin, which is immediately felt by the trained hand, and which may exist in the absence of a very high temperature, and for which I have never heard any adequate physiological explanation. And the third is the complete absence of chlorides from the urine. These three signs form a valuable trinity to remember, for the more one practises physic the greater is the realisation that one physical sign is worth half a dozen symptoms.

I sometimes think that of the great systems of the body it is the respiratory which has lagged behind in spectacular methods of treatment, for though the amelioration of tuberculosis of the lung is much for which to be thankful, the method is, broadly speaking, the same as that practised in the sunlit groves of a Greek temple; only now instead of worshipping Æsculapius, we kneel to the great god Laboratory. Pneumonia still, by right of facts and statistics, bears the title of Captain of the Men of Death, originally given to it by John Bunyan, and a careful study of the literature, especially that pertaining to the use of serum in this disease, does not convince me that treatment has improved in the last half-century. Expectant treatment, which means carefully observing and assisting the various processes by means of which immunity is eventually established, goes on quietly saving lives, whilst one after the other of the so-called specific treatments arise, with a flourish of manufacturer's trumpets, and all too soon, in relation to the expectations aroused, pass into the limbo of forgotten things. When people lived normal, out-of-door country lives, pneumonia, and to a greater extent still, tuberculosis, were not common diseases, but when they herded together into factories at the end of the eighteenth and the beginning of the nineteenth centuries, and the townships, which are now blots on the surface of the earth, formed themselves, tuberculous disease, especially in the lungs, spread like a forest fire. The greatest contribution of medicine towards the defeat of this disease has really been an endeavour to put people back into the country for a longer or a shorter period of time, and gradually to teach the people to say, with John Donne, that "cities are sepulchres and they who dwell there are carcases."

In the treatment of pneumonia, one should use morphia in the same way as a revolver, that is to say, never until it is necessary, and then properly; for both morphia and the revolver, if properly used, need not be employed again. One night's rest and freedom from pain, following the exhibition of an adequate dose, is far more helpful than the partial relief to be obtained from repeated small doses. For the early stages of pneumonia, as well as for large areas of pleurisy, our two most valuable and safest therapeutic aids are morphia and leeches, but for æsthetic reasons the latter are far too little used. Some while ago I came across an old leech woman who for many years had made a good living from a leech farm somewhere down in the Cotswolds. She was now living on an old-age pension, and bereft of other means of resource, because the fashion for the use of leeches has so completely disappeared. I do not know whether she was a typical *laudator temporis acti* but she told me that leeches had joined in the general decay of the world, and no longer bit or swallowed as they used to do. My own impression is that the leeches we used in the hospital ten or fifteen years ago were better at their job than those which to-day I occasionally hire from the chemist.

MECHANICAL ASSISTANCE TO DIAGNOSIS

"In the early diagnosis of empyema, radiological signs are inferior to physical signs, and in three of our cases pus was aspirated from the pleural cavity on clinical grounds before any change was demonstrable in the X ray film." I take this sentence from a recent and valuable article on the pneumonias, which appeared in THE LANCET, for there is a widespread and childlike faith in X ray examinations, many regarding such examinations as infallible. Claude Bernard, the French physiologist, used to say that when you meet with a fact opposed to prevailing theory you should adhere to the fact and abandon the theory, even when the latter is suggested by great authorities and generally adopted—but it is of imperative importance in medicine to be certain of one's facts. I have seen an obvious case of pneumonia denied its correct diagnosis because an X ray examination revealed nothing, and it was only after considerable probing that it was found that the picture had been taken with the wrong type of tube and was therefore useless. Similarly, I have heard of an obvious case of typhoid fever being deprived of its name because an agglutination test was negative; which reduces enteric from the status of a syndrome to that of a peculiarity and particularity of a given specimen of blood-serum. It is more important to delineate a likeness when making a diagnosis than to allow treatment to await the result of a bench test.

When the radiograph first came into general use, the older and wiser physicians fought a rearguard action against too rapid a surrender of the individual's skill in examining by sight and sound but much of this teaching has died with the teachers. The X ray is of such supreme value in so many differing conditions, that we must needs remind ourselves that it is not infallible, and that the attainment of skill in auscultation and percussion, which in its apotheosis takes many years, is still necessary. The man will always beat the machine except when reason is deserted and faith only remains. Then, just as in the days of Laennec's stethoscope, the magic tube will be invested with healing as well as with diagnostic properties.

Emerson's statement that the end of the human race will be that it will eventually die of civilisation has a particular bearing also upon the science of medicine, for in every sphere the replacement of the man by the machine must eventually result in sterility. It is therefore of interest to learn that various teaching centres are now inaugurating lectures and courses in the science of medicine, for there are at last a few people who are beginning to realise that there is little value in the student who can discourse learnedly on the hydrogen-ion concentration of the blood, and yet cannot, by the naked eye, differentiate between a nephritic and a diabetic urine. More reliance upon the use of the eyes and the fingers, and less upon the laboratory, will pay us a dividend of success both in diagnosis and treatment, and to further this end I think that a general practitioner should be appointed to give lectures in every teaching hospital.

[1] Abstract of an address delivered on Feb. 27th, 1936, before the Hunterian Society of St. George's Hospital.

The only times that a physician should close his eyes are when he is using a stethoscope or palpating, for if the mechanism of the sense of sight is temporarily not used, the other senses gain in acuity. Usually it is as well to watch the patient's expression during the whole course of the examination, but as neither the stethoscope nor the bulbs of the fingers (never use the tips) are productive of pain, it is infinitely worth while to become momentarily blind, for then all things, such as diastolic murmurs and liver margins, shall be added unto you. In a famous book on diseases of the gall-bladder, it is stated that a physician literally carries his brains at the tip of his fingers, which is delightful, and in the case of many physicians whom I know would be, from the point of view of quantity, more than a possible conception: but such statements strengthen one's opinion that the word "literally" is responsible for even more lapses in literature than the much-abused words "unique" and "meticulous."

"Look before you feel" should be one of the frequently recurring texts of anyone who aspires to teach medicine. The novice and the indifferent doctor always press, probe, and pummel as the first step to a diagnosis, and this way disaster lies. The clue to the inflamed appendix is found by noting the restriction in the movement of the abdominal wall, not in the imposition of two hundred pounds of doctor on to the patient's belly, accompanied by a naïve inquiry as to whether it hurts. Often the presence of blood inside the peritoneum can be deduced from a small area of bruising appearing on the abdominal skin. Such a sign is sometimes difficult to see unless the whole abdominal wall is examined with a strong light, but when found it is very suggestive, and may indeed be pathognomonic.

THE DIAGNOSTIC VALUE OF PAIN

It is never too late and never too early to remind ourselves how deceptive may be the site of pain. Many people who suffer from pain in or over the heart are convinced that they have some fell cardiac disease and they are too frightened to consult a doctor and to learn the truth, which is that cardiac pain is more often a symptom of disease in the gall-bladder or liver than in the heart itself. The reverse, of course, also holds true, and for example pain in the lower jaw, usually the left side, may be a sign of heart disease, as also may be the sensation of having a lump in the gullet. One perhaps need not hasten to add that in themselves neither of these signs is of any value, and is only to be taken in conjunction with all the minutiæ which go to make up a clinical picture and so point to the diagnosis. When a patient comes into my consulting-room complaining of a pain in the heart region, I lay myself long odds against the presence of any cardiac lesion. Shortness of breath, swelling of feet, irregular pulse, indigestion, blueness or clamminess of the skin, nausea and giddiness, mental change, and a thousand others, are the complaints of heart cases. It is astonishing how badly disorganised a heart may be without giving rise to pain. The inevitable exception, of course, is furnished by angina, and there, though the pain is absolute agony, the fear of impending, sudden, and dramatic death is even more alarming.

It is very important to differentiate between gall-bladder disease and affection of the coronary arteries, which is sometimes more difficult than it sounds. Nearly 50 per cent. of cholecystitic cases, whether or not complicated by the presence of stones, give a story of more or less pain in the heart. This awareness of the precordial region may show all degrees from occasional palpitation to attacks of pseudo-angina. If evidence incriminating either the gall-bladder or the vascular supply of the heart is hard to evaluate, help may often be obtained from an electrocardiograph where the presence of a flattened or inverted T wave may aid in the differential diagnosis, and in so doing will furnish us with one of the comparatively rare occasions in which an electrocardiographic tracing is of practical value in general medicine.

It is probable that a really acute attack of sciatica furnishes the most agonising pain to which a healthy man or woman in comfortable circumstances is liable, and I still think that in spite of many other vaunted remedies the best treatment is to give morphia, a quarter of a grain, repeated perhaps for three nights in succession, and that this treatment will sometimes see the end of an attack. There is no reason to suppose that the drug has any specific effect upon the inflamed nerves, but it gives rest to the tortured body, and in this rest the affected nerves must share. Old-fashioned but still popular text-books, warn us against prescribing morphia in such cases, but I think their authors forget that it is to all intents and purposes impossible for a layman to obtain morphia and therefore the risk of causing an addiction is minimal, and it is my firm belief, from experience in my own practice, that the easily obtained barbiturates are far more dangerous and much less effective as a prescription.

[After some shrewd remarks upon influenza as seen in private practice, when the characteristic features of the pain must be noted, Dr. Howard went on to say that there may be a diagnostic sense enabling some to escape the danger of prescribing the wrong drug or making mistakes in dosage, but the allergic states constitute, he pointed out, a real danger which may beat the prescriber of the most simple drugs. He said:—]

Quinine is a common offender, but I think the most poisonous substance I have come across when ingested by a particular patient, was any form of potato. Even minute quantities, used for instance to thicken a soup, produced immediately profound collapse. Potato is not common, but eggs are quite common as instigators and inciters of these anaphylactic reactions, and no amount of desensitisation appears to have more than a temporary effect. Another drug commonly giving rise to untoward reactions is iodine, and now that in various forms it is widely advertised for external application, and that to its very presence next to the skin in the form of a locket or socks is being attributed a miraculous healing power, it is well to remember that even in minute quantities iodine may be a poison. If only a slight susceptibility exists, nothing but a running nose and red eyes may be noticed but a more pronounced reaction may be evidenced by a severe rash covering all the surface of the body. Iodine is excreted as iodide in the urine, sweat, saliva, milk, and the secretions of most of the glands, and there is a curious fact to remember, that the intensity of the reaction is often inversely proportional to the amount absorbed. People object to the administration of drugs which upset them or which give them an ugly, spotty, and blotchy skin, but it is not until one has examined a good many patients for a good many years that one begins to realise how rare it is to see a really lovely skin. The woman patient who had the most perfect skin I ever saw was almost a moron, so presumably the ectoderm exhausted itself on its attainment and had little left in hand for the highest nerve centres.

Itching of the skin is difficult to treat and is not a very common complaint, though of course localised itching, such as pruritus ani, is a very common complaint. It is usually badly treated and the patient continues to excoriate himself until a second infection is superadded and the misery of itching is intensified by the presence of discharge. The rational treatment consists first in the cure by injection of any internal hæmorrhoids, and the diminution of local congestion consequent upon this step leads in about half the cases to a cure of the pruritus. If, however, the skin, by scratching and secondary infection is hypertrophic and obviously involved, the whole area should be painted with solution of camphor and iodine in spirit until it becomes harder and less inflamed. Then a few injections of benzyl

benzoate in oil may give relief. This relief is likely only to be temporary unless the peri-anal skin is treated carefully for at least a year. There are many varieties of continuation treatment, but the most effective of the important directions are, first, that the area must be washed after every motion, and then La Rola must be carefully rubbed in. This is a patent preparation for which I can find no substitute. Every night the area should be dabbed with witch-hazel. No powder of any sort should be allowed and no dietary rules, except of course in the case of diabetics, are of value. All ointments are useless, but in some cases amazing relief can be given and permanent cure obtained by extracting 2½ c.cm. of blood from a vein in the anti-cubital fossa, mixing it with an equal amount of 2 per cent. novocain, and injecting it carefully, subcutaneously, into the peri-anal area. Personally I think that auto-hemo-therapy in its varying forms is far too little used in England, and for various diseases of allergy, and for such conditions as migraine, and for vague forms of petit mal, it offers a useful field of therapeutic endeavour.

COSMETIC SURGERY

I confess that as yet I do not consider that æsthetic shortcomings fulfil the conditions which should be present before the continuity of the flesh is broken. At a clinic in Paris I have seen queues of middle-aged women, all of whom had recently had their faces lifted, their noses altered, their eyelids tightened, or their breasts raised. With the Psalmist they might inquire of Providence for how long they had recap-tured a faint semblance of youth, for at best the fancied improvement can only be obtained for a very few years. When I asked some of them their reason for submitting to these painful manœuvres they rather archly replied that it was a question of *l'amour*, but I rather fancy that *amour propre* is a better reason, because there is something in the mis-fortunes of our friends which is not displeasing to us

POPULAR MISCONCEPTIONS

It would be impossible to enumerate all the popular misconceptions about the functioning of the body, but the following are a few to which many people still cling with conviction and sometimes emphasis.

(*a*) That insomnia is dangerous to health and leads to mental exhaustion and insanity. There is no jot or tittle of proof that such is the case, and though bodily rest is essential, mental oblivion, even apparent, is not necessary to recurrent and adequate activity of the mind. The amount of sleep required by a given organism varies between very wide limits. The best brain workers and those who by the world's standards are acclaimed as great, often sleep very little. I am not in the least advocating less sleep, but you will be told by your patients that insomnia is necessarily harmful, and this is a bogy that should be laid.

(*b*) That overwork leads to a nervous breakdown. Brain work itself never leads to any damage of the nervous tissue, but five minutes' fear, or a day's worry, which is civilisation's substitute for fear, may affect a person permanently and irreparably for the worse.

(*c*) That a carefully planned diet is essential to health. With obvious exceptions, such as sufferers from diabetes or peptic ulcers, the ordinary mixed diet provides such a wealth of the necessary factors, including salts and vita-mins, that any alteration is much more liable to do harm than good. It has only lately been shown that it is pos-sible to have too many vitamins, just as it is possible to have too few, but only those unfortunates who exist on the hunger line need fear that that great chemical synthetic machine, the body, will be unable to extract from the ordinary mixed diet exactly what is required for the complete and proper functioning of each and every organ.

(*d*) That modern life is too strenuous. Hueffer once wrote a book called "Ladies Whose Bright Eyes," and in it gives a good picture of the rigours of the Middle Ages, and the largest executive in the biggest office, surrounded by twenty telephones and a hundred typists, will be less fatigued at the end of the day than the same man would be after five minutes in the galleys, or an hour at the court of Imperial Spain.

(*e*) That, and it is a most popular misconception, constipation is the root of all evils. Except in the rarest cases, the sequels of constipation are all subjective pheno-mena, and the headache and the lassitude are entirely due to self-suggestion. The mass suggestion of the adver-tisers is a sufficient reason for the auto-suggestion.

Some of your patients who fancy that they suffer from any of these five health misconceptions will want you to advise treatment at a spa. The habit of going to a spa to undergo what is optimistically known as a cure is probably a survival of the days when magic healing properties were attributed to certain places, often wells or springs situated, pre-ferably, in a part of the country difficult of access. To make a pilgrimage in search of health is a real exercise, and the necessity of taking certain steps and of undergoing certain ritual performances fixes the idea of a cure so firmly in the sufferer's mind that the stage is set prettily for the worked for and expected result. An odd commentary on spas in general is provided by the fact that the inhabitants of such places seldom, if ever, drink the nauseous waters or undergo the ritualistic ablutions them-selves, but perhaps like Jeremiah they question whether there is any balm in Gilead. To Jeremiah's further question as to the presence of a physician they can return a strongly affirmative answer, for in this respect as a profession we retain a trifle of our priestly function, and the healing waters cannot usually be obtained, externally or internally, without the *laissez passer* of one of the many spa doctors. I suppose that for people of a gouty and plethoric nature some temporary good must come from an annual pilgrimage to a place where diet and régime and magical waters are to hand, and the yearly treatments may do something to delay what one writer has so aptly called that slide in ugly anguish from vaccines and bedpans to the tomb. Having, for my sins, smelled the waters at some spas both at home and abroad, I confess that I find a feeling of great sympathy for Samuel Butler when he said that "when the water of a place is bad it is safest to drink none that has not been filtered, either through the berry of a grape or else a tub of malt. These are the most reliable filters yet invented." When, however, patients are becoming a nuisance and are wearying, it is one way of escape to send them to a spa.

I have noticed that clever people are usually fools about their own health. The nice clever people, those who have great gifts and an accompanying simplicity of soul, fall into the hands of charlatans and dishonest healers because, knowing nothing of objective pathology, they will accept any statement or treatment which the quack likes to suggest. One can love this type even though at times a con-siderable irritation is produced by some further piece of evidence of stupidity. The difficult and rather worthless type is the successful, usually rich, person, who having differentiated himself from the common herd by the amassing of money, or the purchase of a title, must needs be individual in his therapeutic adventures. The common basis for the absolute and stupid faith which such a man exercises in respect to some new treatment is conceit, for he cannot bear to be as other men are and must always know better than the ordinary mortal. Examples of this stupidity, of this Athenian demand for some new thing, are so numerous that I will not attempt to chronicle them, but every practitioner probably hears of a case of this sort about once a month; such as that of a patient who after a colostomy for an inoperable growth goes to a quack, and as a result attributes his improving health to the new remedies and not to the cessation of septic absorption and of obstruction consequent upon his colostomy. During this brief period of feeling better he harries his friends until they too are shepherded into the false fold. Then when the growth slowly progresses and the sufferer, after going more or less rapidly downhill,

crawls away to die quietly, he is either too ashamed or too callous to revoke the glowing testimonials he had previously broadcast.

Dr. Howard concluded with some amusing examples of the distrust among medical men of innovations, and the confidence of the public in the veteran practitioner. These people, he said, are apt to exclaim with Oliver Wendell Holmes that "Age lends the graces that are sure to please." I looked up the rest of the quotation and have now memorised it as a retort when I am next told that an older doctor is preferable, for I find the ensuing line is, "Folks want their doctors mouldy, like their cheese."

PSYCHOLOGY FOR MEDICAL STUDENTS

ADDRESSING the Medical Society for Individual Psychology on March 12th, Sir WALTER LANGDON-BROWN spoke of the efforts being made to provide medical students with a basic training in psychology. The Curriculum Conference, of which he was a member, reported last May in favour of an elementary course of lectures towards the end of the preclinical period. The lectures at this stage, said Sir Walter, should bring the facts of psychology into relation with the student's own attempts at adjustment to daily life and environment, and they should be given by a medical man rather than a pure psychologist; for in T. A. Ross's words, "it would be extremely easy to ensure hatred of all psychology if the student were put through a serious course of academic psychology." Later, when he reached his clinical period he must be prepared to realise that imagined ills required, equally with organic ones, investigation and treatment. Such investigation and treatment called for simpler, more practical, and less specialised methods if they were to be of any subsequent value to the general practitioner. Not all mental and psychological conditions, of course, were suitable for treatment by the practitioner; the psychotic patient was often inaccessible and an obsessional state often required long and specialised treatment. But an understanding of all neuroses and psychoses, and a practical knowledge of how to treat the main bulk of neuroses with which he would later have to deal in general practice was essential for the medical student.

The conference had recommended the continuance of demonstrations in a mental hospital, but emphasised the importance of making a student familiar with the psychological aspects of *all* patients. Demonstrations should be held—by physician, surgeon, or psychologist—at least once a fortnight throughout the student's period of in-patient clerkships, and in this way the teacher of medical psychology should be able to draw upon the material in the hospital as a whole. The teaching of this subject should be woven into the ordinary teaching of medicine and surgery, and it was important that the teachers should approach their subject free from the trammels of pre-war materialistic medicine in which most of the present generation were brought up. The stimulus to provide a broader and more psychological approach to medicine was not only desired from students of psychology and reasearch; the pressure to teach the neuroses is coming from below; the students themselves were eager for it, and if they did not get it from one school they would go elsewhere.

In the subsequent discussion Dr. EDWARD MAPOTHER criticised an assumption implicit in Sir Walter Langdon-Brown's thesis—namely, that the psychoses and neuroses were two separable and distinct entities. This was not generally accepted; indeed there were good reasons why the study and perhaps the practice of the two should proceed by coördinated and coöperative methods.—Dr. HENRY YELLOWLEES maintained that the psychiatrist was in fact already successfully engaged in dealing with mental disorder of all kinds whether neurotic or psychotic. Treatment of the neuroses did not postulate a different method or viewpoint from that of the psychoses, and there were many instances of a little knowledge being a dangerous thing.—Dr. T. A. Ross expressed general agreement with Sir Walter's views. Many neuroses were aggravated by the accumulation of biochemical and other physiodiagnostic data; it would be in the interests of all concerned to have the simple teaching methods applied which the speaker had described.—Dr. DAVID FORSYTH said that the methods advocated had the virtue of assisting the future medical generation to correlate the old with the new concepts in medicine.

Dr. MARGARET LOWENFELD said that experience of child psychology confirmed the urgent necessity for a new viewpoint in the treatment of nervous disorders in children.—Dr. A. T. WILSON doubted whether it was possible to teach a new mode of approach to anyone confirmed in a mechanistic philosophy of causation. Preclinical teaching should be behaviourism; the bias at present was towards the analytic—Dr. R. A. NOBLE pointed out that one of the intentions of the Curriculum Conference was to add to the existent demonstrations of and lectures in psychiatry; not in any way to replace them. Physicians' distrust of psychology would be dispelled by a recognition of the fact that to be a good medical psychologist a man must primarily and essentially be a good physician.—Dr. C. M. BEVAN-BROWN, the chairman, said that Sir Walter's propositions were generally those for the advocacy of which the Society stood. For their satisfactory achievement it would be necessary to destroy, or at least modify, the mechanistic concept. The difference between the old schools and the new was fundamentally a difference of philosophic standpoint. Hitherto the materialistic standpoint had been predominant.

AIR RAID PRECAUTIONS

IN connexion with the measures being taken to mitigate the effects of possible air-raids, the Order of St. John of Jerusalem and the British Red Cross Society have agreed to place their organisations at the disposal of both central and local governments in order to supplement official resources. We understand that the St. John Ambulance Brigade have issued a special order to their divisions all over the country making provision for the training of (1) instructors, (2) the existing rank and file of the Brigade, and (3) the general public as an auxiliary reserve. The British Red Cross Society, through its county branches, is taking similar action. Already, it is stated, over 900 officers of the Brigade, many of them medical men, have been through intensive courses of instruction in London, and many of these, having obtained their instructor's certificate, are conducting classes elsewhere. The British Red Cross Society have many hundreds of officers who are also qualified to instruct. The demand for these trained men and women is said to be rapidly increasing, for the medical officers of health of boroughs and urban districts have been officially advised to organise first aid and decontamination posts in their areas, the personnel of which will be voluntarily supplied by these trained members of the St. John Ambulance Brigade and the British Red Cross Society. Those taking the courses of the Brigade and the Society undergo examination and receive certificates. Subsequent examinations are held to ensure continued efficiency.

HYGIENE IN BRIEF

A CRITICISM often levelled at the study of preventive medicine is that, though vitally important and necessary, it is generally dull. It is thus satisfactory that however listlessly the reader may take up the authorised text-book of the St. John Ambulance Association,[1] he will be interested in spite of himself for it is packed

[1] Hygiene or the Gospel of Health. The authorised text-book of the St. John Ambulance Association. Third edition. By Neville M. Goodman, M.D. Camb., D.P.H. Lond., Lecturer and Examiner for the St. John Ambulance Association; Lecturer in Public Health and Sanitation, the London Hospital. London: St. John's Gate, Clerkenwell, E.C.1. 1935. Pp. 195. 1*s.* 6*d.*

with meat from start to finish, prepared in a palatable and digestible form. Dr. Goodman is a sane optimist. He believes, with Dr. Alfred Cox, that health can be bought and that it is not the people who make the slums. It is hard to choose quotations where so much is worth quoting, but two examples of his pithy utterances may be given. "An Englishman's home is said to be his castle; it should at least be a healthy, modern one, not an insanitary mediæval ruin." And again, "The good housewife must know where to draw the line between making her home a kind of museum of cleanliness and a slovenly abode of dirt. At either extreme her husband and family will only return home with reluctance." Appended to each chapter is a questionnaire which can be answered from the text and should prove useful to examinees.

WHITAKER'S ALMANACK

THE new edition of Whitaker's Almanack not only contains the new House of Commons and a conspectus of the National Government as reconstituted after the general election, but also the changes consequential on the death of King George V. and the accession of Edward VIII. The Almanack is thus so modern that we turned with misgiving to the title page with the signs of the zodiac, to find with relief that it remains as it always was. The Almanack is still the completest guide we have to the activities of our fellow human beings and might well be the most acceptable gift for anyone allowed to possess only one book and already familiar with the Bible and Shakespeare. By way of quotation a single item of curious information must here suffice. Contrary to general belief, of the 40 million inhabitants of England and Wales less than 1 per cent. were born in Scotland, while of the five million inhabitants of Scotland nearly 3·5 per cent. were born in England or Wales. Whitaker can be relied upon to refute many other well-worn fallacies. The price is 3s. in paper cover and 6s. in cloth.

Vacancies

For further information refer to the advertisement columns.

Barnsley Municipal General Hospital.—First Asst. M.O. £650.
Belgrave Hospital for Children, Clapham-road, S.W.—Two H.P.'s and one H.S. Each at rate of £100.
Birmingham, Canwell Hall Babies' Hospital.—Res. M.O. At rate of £250.
Birmingham City.—Sen. Asst. M.O.H. £750.
Birmingham City, Maternity and Child Welfare Dept.—Three Temp. M.O.'s. Each £10 per week.
Birmingham, Queen's Hospital.—Bacteriologist and Clinical Pathologist. £600. Also Res. Surg. Reg. £125.
Bolton Royal Infirmary.—H.S. £125.
Brighton, New Sussex Hospital for Women, Windlesham-road.—H.P. £100.
Bristol, Brentry Colony for Male Mental Defectives, Westbury-on-Trym.—Res. Med. Supt. £650.
Bristol, Ham Green Hospital and Sanatorium.—Jun. Asst. Res. M.O. £250.
British Postgraduate Medical School, Ducane-road W.—Three H.S.'s.
Burnley, Victoria Hospital.—H.P. At rate of £150.
Cambridge, Addenbrooke's Hospital.—H.P. Also H.S. to Special Depts. Each at rate of £130.
Cardiff Royal Infirmary.—H.S. for Ophth. Dept. At rate of £40.
Chester, East Lancashire Tuberculosis Colony, Barrowmore Hall.—H.P. At rate of £150.
Cumberland County Council.—Asst. County M.O.H. and District M.O.H. £800.
Durham County Mental Hospital.—First Asst. M.O. £594.
Eastbourne Royal Eye Hospital, Pevensey-road.—H.S. £100.
Exeter, Royal Devon and Exeter Hospital.—H.S. to Ear, Nose, and Throat Dept. At rate of £150.
Golden-square, Throat, Nose, and Ear Hospital, W.—H.S. £100.
Gordon Hospital for Rectal Diseases, Vauxhall Bridge-road, S.W.—Res. H.S. £150.
Gravesend and North Kent Hospital.—H.S. £125.
Greenwich Metropolitan Borough.—M.O.H. £1100.
Harrogate and District General Hospital.—Hon. Physician.
Hospital for Consumption and Diseases of the Chest, Brompton, S.W.—Res. Surg. O. £150. Also Asst. Res. M.O. and 3 H.P.'s. At rate of £150 and £50 respectively.
Hospital for Epilepsy and Paralysis, Maida Vale, W.—Res. M.O. Also H.P. At rate of £150 and £100 respectively.
Hospital of St. John and St. Elizabeth, 60, Grove End-road, N.W.—Res. H.S. At rate of £75.
Huddersfield Royal Infirmary.—Cas. O. £200. Also H.P. and Res. Anæsthetist. £150.
Hull Royal Infirmary.—First H.P. At rate of £175.
Ilford, King George Hospital.—H.P. and two H.S.'s. Each at rate of £100.
Infants Hospital, Vincent-square, Westminster, S.W.—H.P. At rate of £75.
Ipswich, East Suffolk and Ipswich Hospital.—H.S. £144.
Kent Education Committee.—Half-time Asst. M.O. £350.
Laboratories of Pathology and Public Health, 6, Harley-street, W.—Third Asst. Pathologist. £450.
Leeds Hospital for Women.—Hon. Surgeon. Also Hon. Obstet. Surgeon.
Leeds Maternity Hospital, Hyde Terrace.—Res. Surg. O. At rate of £200. Also two H.S.'s. Each at rate of £75.
Leeds University.—Chair of Anatomy. £1000. Also Tutor in Obstetrics and Gynæcology. £500.
Liverpool Sanatorium, Delamere Forest, Frodsham.—Second Asst. to Med. Supt. £200.
Liverpool, Walton Hospital.—Res. Asst. M.O. £200.
London County Council.—Two Asst. M.O.'s (Grade II.). Each £250. H.P.'s. Each £120. Also Clin. Asst. £150.
L.C.C. Central Histological Laboratory, Archway Hospital, Archway-road, N.—Asst. Pathologist. £650.
London Lock Hospitals.—Two Res. M.O.'s. One for Male Dept. One for Female Dept. Each at rate of £175.
London University.—University Chair of Anatomy at St. Bartholomew's Hospital Medical College. £1000.
Macclesfield General Infirmary.—Second H.S. At rate of £150.
Maidstone, Kent County Ophthalmic and Aural Hospital.—Ophth. H.S. At rate of £200.
Manchester, Ancoats Hospital.—Res. M.O. At rate of £150.
Manchester, Booth Hall Hospital.—Jun. Asst. M.O. At rate of £200.
Manchester Royal Children's Hospital, Pendlebury.—Res. Surg. O. At rate of £125.
Manchester Royal Infirmary.—Registrar to Medical Out-patients. At rate of £150.
Margate, Royal Sea-bathing Hospital.—Asst. Med. Supt. £500.
Maudsley Hospital, Denmark Hill, S.E.—Asst. M.O.'s. Each £470.
Mount Vernon Hospital, Northwood.—Asst. Radiologist. £500.
National Hospital for Diseases of the Heart, Westmoreland-street, W.—Res. M.O. Also Out-patient M.O. At rate of £150 and £125 respectively.
Newport, Mon., Royal Gwent Hospital.—Cas. O. £175. Also H.S. £135.
New Zealand, Queen Mary Hospital, Hanmer Springs.—M.O. £650.
Oldham Royal Infirmary.—Cas. O. and H.S. for Fracture Dept. At rate of £175.
Portsmouth Royal Hospital.—Cas. O. At rate of £130.
Preston and County of Lancaster Royal Infirmary.—H.P., Cas. H.S. Also H.S. Each at rate of £150.
Queen Mary's Hospital for the East End, Stratford, E.—Asst. Radiologist. £150. Also Obstet. H.S. £120.
Reading, Royal Berkshire Hospital.—H.P. Also Cas. O. Each at rate of £125.
Redhill, Royal Earlswood Institution.—Jun. Asst. M.O. At rate of £250.
Richmond, Surrey Royal Hospital.—Jun. H.S. At rate of £100.
Rochdale Infirmary and Dispensary.—Second H.S. £150.
Rotherham Hospital.—Cas. H.S. £150.
Royal Free Hospital, Gray's Inn-road, W.C.—Res. Cas. O. At rate of £150.
Royal National Orthopædic Hospital, 234, Great Portland-street, W.—H.S. At rate of £150.
Royal Society, Burlington House, W.—E. Alan Johnston and Lawrence Research Fellowship in Medicine. £700.
St. Mary's Hospital for Women and Children, Plaistow, E.—Res. H.S. and Res. H.P. £155 and £150 respectively.
Salford City.—Asst. M.O. for Venereal Diseases Treatment Centre. £500.
Salford, Hope Hospital.—Res. Obstet. Officer. £400.
Salisbury General Infirmary.—H.S. At rate of £125.
Samaritan Free Hospital for Women, Marylebone-road, N.W.—H.S. At rate of £100.
Sheffield Children's Hospital.—H.S. At rate of £100.
Shoreham-by-Sea, Southlands Hospital.—Second Asst. Res. M.O. £300.
Southend-on-Sea General Hospital.—Obstet. Registrar. £125.
South London Hospital for Women, Clapham Common, S.W.—Clin. Asst.
Surrey County Council.—Ophth. Surgeon. £750.
Swanley Hospital Convalescent Home, Parkwood.—Res. M.O. At rate of £200.
University College Hospital, Gower-street, W.C.—Hon. Clin. Asst. in X Ray Dept.
West London Hospital, Hammersmith-road, W.—Physician.
Wigan, Royal Albert Edward Infirmary and Dispensary.—Res. Med. and Surg. O. and Reg. £250. Also H.S. £150.
Willesden General Hospital, Harlesden-road, N.W.—Hon. Anæsthetist.
Yorkshire Children's Orthopædic Hospital, Kirbymoorside.—H.S. £200.

The Chief Inspector of Factories announces a vacancy for a Certifying Factory Surgeon at Nelson (Lancs.).

SCARBOROUGH'S NEW HOSPITAL.—The new hospital at Scarborough, which is being built at a cost of £128,000, is to be opened in September. Between £12,000 and £15,000 is required to meet the capital expenditure. Its maintenance cost will exceed that of the present hospital, but it is hoped that a new contributory scheme, which will bring in at least £3000, will make this good.